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Bournemouth Natural Science Society

BRITISH MUSEUM
25 MAR 1971
NATURAL HIST RY

Proceedings

(1969 - 70)

VOLUME LIX

PART II

BRITISH MUSEUM
25 MAR 1971
NATURAL HISTORY

PROCEEDINGS

of the

Bournemouth Natural Science Society

VOLUME LIX

PART II

1969 - 70

Edited by
GRAHAM TEASDILL
F.M.A., F.R.S.A., F.R.N.S., F.Z.S.

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Introductory Note

The objects of the Society are declared in the second of its rules to be "the promotion of the study of Science in all its branches, and of Public Education, by means of Lectures, Field Meetings, the reading and discussion of Papers, and in any way that the Council of the Society shall deem advisable".

The branches of Science at present represented are as follows:— **Archæology, and History, Astronomy, Botany, Geography, Geology, Photography, Physics and Chemistry, Zoology—Birds, Insects, Mammals.**

During the Winter Session, from October to April, lectures on matters of scientific interest are held on two or three days a week. These are usually illustrated by slides, films, episcope pictures, specimens, diagrams, experiments, etc.

Throughout the Summer Session, from April to September, Excursions or Field Meetings are arranged on two or three days every week, when parties of members visit places of scientific interest under the guidance of section chairmen and other specialists, sometimes in or near Bournemouth, at other times farther afield by coach or train.

The Society possesses a Library from which books may be borrowed by members, and there is a Reading Room where works of reference may be consulted. The Museum contains many valuable scientific collections and specimens. The Library and the Museum serve to illustrate and illuminate the ten Sections of the Society. There is a well-equipped Dark Room for the use of members interested in photography. The house stands in a pleasant garden of over an acre.

The management of the Society is vested in a Council, which is elected at the Annual General Meeting. Members are elected by the Council. An Entrance Fee of 25p is payable upon nomination for election. The Annual Subscription for Town Members is £2 (Life Membership £15); for Associate Members, aged 12-18 years, it is 50p. The Family Subscription (for members of a family living in the same house) is as follows:— first adult member, £2, second adult member, £1.50; each additional adult member, £1; children between 12 and 18 years (Associate Members), 25p each. Applicants for Associate Membership pay no entrance fee. **Town Membership is confined to those who are resident within the Municipal, Urban District and Parish Boundaries listed below:—**

HAMPSHIRE: Bournemouth County Borough, Hurn, Sopley, Christchurch Municipal Borough, Christchurch East.

DORSET: Poole Municipal Borough, Wimborne Urban District, Hampreston, West Moors, West Parley.

Members, other than Associate Members, living outside the areas listed above shall pay half the above rates of subscription. (Life Membership £15.) Special subscription for visitors to Bournemouth, 25p per month.

Every three months a Programme giving full details of all meetings is posted to every member. A Volume of Proceedings is published annually; adult members receive a copy.

Application Forms for Membership and further particulars may be obtained from the Honorary Deputy Secretary, Mrs. B. E. Hooton-Smith, B.N.S.S., 39 Christchurch Road.

ERNEST CHAMBERS, F.L.S.

Mr. Chambers has been a member of the Bournemouth Natural Science Society since 1943 and a Vice-President since 1952.

He has the almost unique distinction of having been President of the Society on two occasions, first from 1951 until 1952 and then again from 1969 until 1970 when he invested Mr. Graham Teasdill as President on 10th October 1970.

Mr. Chambers, an Hereditary Freeman of the City of York, has been described as embodying the unwritten Constitution of our Society which has been privileged over the last twenty-seven years to hear one hundred and ten lectures from him, each the result of the most painstaking research and preparation.

We look forward to his continued active interest in the well-being of the Society.

ERNEST CHAMBERS, F.L.S.
President 1951-52 and 1969-70

Bournemouth Evening Echo photograph

The Lord Lieutenant of Hampshire, The Rt. Hon. Lord Ashburton, K.G., K.C.V.O., J.P., accompanied by the Mayor and Mayoress of Bournemouth (Ald. and Mrs. E. A. Lane) was received by Mr. John Robinson, Chairman of the Geography Section of the Society on Friday, 23rd October 1970, when he addressed the Society on "The Office and Duties of the Lord Lieutenant". Behind the Chairman are Mrs. J. Robinson, the Deputy Mayoress (Mrs. B. E. D. Beckett) and the President (Mr. G. Teasdill).

Bournemouth Museums Photograph by Harold Morris

The President, Mr. Graham Teasdill, with H.M. King Gustav VI Adolf of Sweden during the Royal visit to Bournemouth Museums, Saturday, 7th November 1970. His Majesty requested that a copy of this edition of the Society's *Proceedings* should be sent to him and he expressed considerable interest in the Riviera Iron Age Site excavation on the East Cliff, Bournemouth.

Bournemouth Natural Science Society
List of Presidents (1903-1971)

1903—04	J. E. Beale (Mayor of Bournemouth)
1904—06	G. E. J. Crallan, M.A., M.B., M.R.C.S.
1906—07	H. J. Waddington, F.L.S.
1907—09	A. Ransome, M.A., M.D., F.R.C.P., F.R.S.
1909—10	A. Smith Woodward, D.SC., F.R.S., F.L.S., F.G.S.
1910—11	Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S.
1911—13	Sir E. Ray Lankester, K.C.B., M.A., LL.D., F.R.S., F.L.S.
1913—16	Sir Daniel Morris, K.C.M.G., J.P., M.A., D.SC., D.C.L., F.L.S.
1916—17	The Rt. Hon. the Earl of Malmesbury, D.L., J.P.
1917—18	Sir Jethro J. H. Teale, M.A., D.SC., LL.D., F.R.S.
1918—20	Field Marshall Lord Grenfell of Kilvey, G.C.B., G.C.M.G., LL.D., F.S.A.
1920—21	Lt. Col. Sir David Prain, C.M.G., C.I.E., F.R.S.
1921—23	F. G. Penrose, M.D., F.R.C.P., F.Z.S., M.B.O.U.
1923—24	Sir F. W. Keeble, K.B.E., D.SC., F.R.S.
1924—26	Hubert Painter, B.SC., F.C.S.
1926—28	Heywood Sumner, F.S.A.
1928—29	Claude Lyon
1929—30	Professor F. O. Bower, D.SC., F.R.S.
1930—31	Henry Bury, M.A., F.L.S., F.G.S.
1931—32	Dukinfield H. Scott, M.A., LL.D., F.R.S., F.L.S., F.G.S.
1932—33	J. P. Williams-Freeman, M.D.
1933—34	Rev. F. C. R. Jourdain, M.A., F.Z.S., M.B.O.U.
1934—35	Sir F. W. Dyson, K.B.E., M.A., D.SC., LL.D., F.R.S., F.R.A.S.
1935—36	Henry Bury, M.A., F.L.S., F.G.S.
1936—37	Sir Harold Carpenter, M.A., D.SC., F.R.S.
1937—38	Professor John Cameron, M.D., D.SC., F.R.S.E.
1938—39	Professor G. D. Hale Carpenter, M.B.E., D.M., F.L.S., F.Z.S., F.R.E.S.
1939—40	W. G. Aitchison Robertson, M.D., D.SC., F.R.C.P., F.R.S.E.
1940—41	Rev. Professor M. C. Potter, M.A., D.SC., F.L.S.
1941—42	Inst.-Capt. M. A. Ainslie, R.N., M.A., F.R.A.S.
1942—43	William C. Simmons, B.SC., A.R.C.S., F.G.S.
1943—44	Professor S. Mangham, M.A.
1944—45	A. S. Hemmy, B.A., M.SC.
1945—46	J. F. N. Green, B.A., F.G.S.
1946—47	Lt.-Col. G. C. Drew, D.S.O., F.S.A.
1947—48	W. J. Woodhouse, A.C.P.
1948—49	Edward Hindle, M.A., D.SC., F.R.S., F.Z.S.
1949—50	Mrs. W. Boyd Watt, F.Z.S., M.B.O.U.
1950—51	Professor Sir R. A. Peters, M.C., M.A., M.D., F.R.S.
1951—52	Ernest Chambers, F.L.S.
1952—53	F. Williamson, F.R.HIST.S.
1953—54	H. E. Clarke, M.A., B.SC., F.R.I.C.
1954—55	W. J. Read, M.SC., F.R.I.C.
1955—56	W. S. Brown, B.SC.
1956—57	A. W. Legat, M.INST.C.E., M.I.S.E.
1957—58	D. A. Wray, PH.D., M.SC., F.G.S.
1958—59	Miss M. A. M. Penrose, B.SC.
1959—60	Miss D. M. Lowther, B.SC.
1960—61	James Fisher, M.A., F.L.S., F.Z.S.
1961—62	W. P. Winter, B.SC.
1962—63	F. H. Perring, PH.D., M.A.
1963—64	Miss F. M. Exton, B.A.
1964—65	Dame Kathleen Lonsdale, D.B.E., D.SC., F.R.S.
1965—66	A. J. Butcher, F.R.I.B.A.
1966—67	Mrs. A. K. Hunt, B.SC.
1967—68	Professor F. Hodson, PH.D., B.SC., F.G.S.
1968—69	T. Marshall Bell, B.A., M.B., B.CH.
1969—70	Ernest Chambers, F.L.S.
1970—71	Graham Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.

Bournemouth Natural Science Society

OFFICERS AND COUNCIL FOR 1970-71

N.B.—University degrees and other qualifications are inserted only at the first mention of names.

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GRAHAM TEASDILL, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.

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MISS M. A. M. PENROSE, B.SC.
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Deputy Chairman: BRIG. A. B. D. EDWARDS, C.B.E., M.C.

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Geology: D. A. WRAY, PH.D., M.SC., F.G.S.
Photography: MISS U. M. OGLE
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Zoology—Entomology: SQUADRON LEADER J. L. C. BANKS
Mammalia: MISS K. M. BENNETTS
Ornithology: MRS. L. M. MADDOX

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Hon. Editor: G. TEASDILL, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.
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Finance and General Purposes:

Chairman: W. Laidlaw

President, Deputy Chairman, Hon. Treasurer, Hon. Secretary, Chairman of Chairmen of Sections Committee, Hon. Deputy Secretary, Hon. Assistant Treasurer (*all ex-officio*)

E. E. G. Boite, H. V. Harris, G. Teasdill

Library:

Chairman: Miss E. Horne, M.A.

D. T. Adams, Mrs. I. M. Bircumshaw, E. W. Hooton-Smith, M. J. Middleton, Miss E. C. Todd (*Deputy Chairman*)

Museum:

Chairman: Mrs. N. Sephton

Chairmen of Sections (*ex-officio*)

Garden:

Chairman: Mrs. W. Chome

Miss R. W. Brown, Miss D. Clamp, Mrs. A. K. Hunt, Miss H. I. Payne, Miss E. M. Whitaker

House:

Chairman:

W. J. C. Ames, Mrs. W. Chome, W. H. Lee, Mrs. B. Taylor, Miss E. Crichton Todd

Tea:

Chairman: Miss E. M. Whitaker

Miss I. K. Burroughs, Miss R. W. Brown, Mrs. J. S. G. Kenworthy, Mrs. M. Laidlaw, Mrs. L. B. Lee, Mrs. M. K. Parkinson

Miss W. A. Saunders, Mrs. D. G. Le Sueur, Mrs. B. Taylor (*Deputy Chairman*), Miss J. White

Entertainment:

Chairman: Miss M. Allen

Miss D. Clamp, Mrs. C. D. M. Goldie, J. Robinson, Mrs. D. Suckling

Visiting:

Chairman: Brig. A. B. D. Edwards

Sqd.-Ldr. J. L. C. Banks, Mrs. W. Chome, Miss M. Hipperson

Bournemouth Natural Science Society
List of Members

Revised to 31st October, 1970

* Honorary Member
v Vice-President
† Past President
w Gilbert White Fellowship
l Life Member
a Associate Member

The year of election is given before the name of each member
Unless otherwise stated all addresses are in Bournemouth

1961	Adams, D. T., M.A.	13 Sandy Mead Road BH8 9JY
1961	Adams, Mrs. M.	" "
1968	Adkins, Mrs. K. J.	6 Pennington House, 8 Grosvenor Road BH4 8BL
1958	Agar, R., A.M.I.C.E.	84 Howard Road BH8 9ED
1961	Aiers, Miss E. M.	48d West Cliff Road BH4 8BB
1970	Aldridge, I. C. B.	33 Hastings Road BH8 0HW
1969	Allen, Mrs. A. B. M.	82 West Cliff Road BH4 8BG
1962	Allen, Mrs. A. W. S.	80 Bath Hill Court BH1 2HT
1963	Allen, Miss M.	174 Holdenhurst Road BH8 8AS
1968	Allington, A. H.	29 Colemere Gardens, Highcliffe BH23 5AS
1968	Allington, Mrs. I.	" "
1960	Alsford, C.	20 Church Road, Ferndown BH22 9EU
1960	Alsford, Mrs. J. R.	" "
1955	Ambler, Mrs. A.	3 Little Forest Road BH4 9NN
1968	Ames, W. J. C.	3 Rothesay Road BH4 9NH
1968	Ames, Mrs. D. A.	" "
1965	Andrews, Miss K. E.	14 Frances Road BH1 3RZ
1963	Archer, Mrs. H. M.	4 Barclay Mansions, St. Valerie Road BH2 6PF
1967	Arnold, Mrs. M.	1198 Christchurch Road BH7 8DY
1950	*Bailey, Mrs. A. A.	4 East Avenue BH3 7BY
1955	Bailey, Miss F. E. L.	57 St. Catherine's Road BH6 4AD
1955	Bailey, Miss G. L.	" "
1964	Balch, Miss M. M., M.B.E., B.A.	Flat 3, 37 Queen's Park South Drive BH8 9BH
1962	Balfour-Browne, Miss E. F.	Acorn Cottage, Station Road, Verwood BH21 6PU
1957	Baly, Miss O. M.	70 Brackendale Road BH8 9HZ
1966	Band, J., M.P.S.	5 Boscombe Cliff Road BH5 1JL
1966	Band, Mrs. M., M.A.	" "
1966	aBand, Miss E. M.	" "
1970	aBand, Miss E.	" "
1967	Banks, Sqd.-Ldr. J. L. C.	Kingston, Dene Walk, Ferndown BH22 8PQ
1967	Barnes, F. W.	10 Manor Road, Christchurch BH23 1LU
1969	Bass, Miss J.	24 Dunkeld Road BH3 7EN
1965	Bates, A. D.	8 Southlea Avenue BH6 3AB
1964	Bates, Mrs. G. E.	29 Lascelles Road BH7 6NF
1968	Beer, Miss J. L.	2 Dale House, Wharfdale Road BH4 9BU
1944	vBell, T. M., B.A., M.B., B.CH.	5a Stourwood Avenue BH6 3PN
1941	Bell, Mrs. R. M.	" "
1969	Benbow, Miss E. M.	Westover Gardens Hotel, Westover Road BH1 2BA

1963	Bennetts, Miss K. M.	29 Belle Vue Gardens, Bell Vue Road BH6 3BG
1947	Berrill, Miss M. E.	41a Cavendish Road BH1 1RA
1967	Bettell, Miss I. M.	4 Curzon Court, Portarlington Road BH4 8BU
1966	Bidder, E. R.	Bourne Hall Hotel, Queen's Road BH2 6BD
1970	Biggs, Miss E. W.	41 Christchurch Road BH1 3NS
1965	Bircumshaw, Mrs. I. M., B.SC.	116 Albany, Manor Road BH1 3EW
1968	Bisiker, T. D.	23 Greensleeves Avenue, Broadstone BH18 8BJ
1946	Blackmore, H. C., L.D.S., R.C.S.	17 Ferry Road BH6 4BH
1946	Blackmore, Mrs. E. E.	,, ,,
1969	Blackmore, L.	Shaunville, Bridge Road, Lymington
1968	Blick, L. W., C.ENG., M.I.E.E.	Cleeve Court Hotel, Knyveton Road BH1 3QN
1964	Blower, Miss M.	105 Ringwood Road, Verwood BH21 6AD
1960	Boite, E. E. G.	17 Browning Avenue BH5 1NR
1957	Booth, Mrs. L.	41 Cedar Avenue BH23 2PS
1966	Boston, Miss S. S.	55 Wellington Road BH8 8JL
1968	Bournemouth Public Libraries	H. E. Radford, F.L.A., Borough Librarian Central Library, Lansdowne BH1 3DJ
1967	Bournemouth Museums	G. Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S., Curator, Russell-Cotes Museum, East Cliff BH1 3AA
1967	Bowers, Mrs. M. P.	2 Wootton Court, Wootton Mount BH1 1PJ
1969	Bray, W. A.	234 Ringwood Road, Leigh Common, Wimborne
1969	Bray, Mrs. M. F.	,, ,,
1968	Brazier, Miss M. A.	4 Cedar Avenue BH10 7EF
1967	Brown, H. G	3 Blake Avenue, Poole BH14 8QA
1966	Brown, Miss R. W., B.A.	11 St. Winifred's Court, 3 St. Winifred's Road BH2 6NY
1967	Brown, S. C. S., F.D.S., R.C.S., L.D.S.	158 Harewood Avenue BH7 7BG
1962	Brown, Miss V. C.	4 St. Winifred's Road BH2 6NZ
1969	Buckland, Mrs. E.	110 Harewood Avenue BH7 6NS
1951	wBull, A. W. M., C.B.	Nazareth House, London Road, Charlton Kings, Glos. GL52 CYJ
1964	Burroughs, Miss I. K.	14 Richmond Park Avenue BH8 9DP
1970	Burt, Mrs. O. M.	17 Vicarage Road BH9 2SA
1930	Bury, Miss G. J.	4 Berne Court, Grove Road BH1 3AJ
1946	Busby, Miss A. G.	77 Haven Road, Poole BH13 7KA
1967	Cady, Mrs. L.	108 Alexandra Road, Poole BH14 9EP
1928	LCalkin, J. B., M.A., F.S.A.	39 High Street, Langton Matravers BH19 3HA
1970	Campbell, Miss H. F.	17 Melbury, Lindsay Road, Poole BH13 6AT
1967	Carsbury, W. H., C.ENG., M.I.E.E.	West Drive, Ballards Close, Lytchett Matravers BH16 6EW
1967	Carsbury, Mrs. M.	,, ,,
1964	Cartwright, Miss D. E., M.B.E.	31 Wistaria House, Redhill Drive BH10 6AE
1967	Chalmers, Mrs. E. W., M.A.	5 Headswell Crescent BH10 6LF
1943*†v	Chambers, E., F.L.S.	Cleeve Court Hotel, Knyveton Road BH1 3QN
1950	Chambers, Mrs. E.	,, ,,
1969	Chappell, J. V.	37a Bryanstone Road BH3 7JF
1959	Charter, A.	Flat 3, 1 Cavendish Place BH1 1RQ
1959	Charter, Mrs. E. E.	,, ,,

1970	Cherry, Miss R.	83 Bath Hill Court BH1 2HT
1945	Child, Miss L. M.	38 Arnewood Road BH6 5DH
1912	L*Chilver, Miss K. M.	262 Windham Road BH1 4QX
1951	Chomé, E. E. P.	6 Alyth Road BH3 7DF
1942	*Chomé, Mrs. W.	" "
1950	Churches, Mrs. E. W., M.B., CH.B.	42 Eastgate Street, Winchester
1968	Clamp, Miss D.	22 Brierley Road BH10 6EH
1958	Clarke, Miss A. M., B.A.	9 Stourwood Road BH6 3QP
1969	Clark, Miss J. I.	Royal National Hospital, Bourne Avenue BH2 6DN
1945	Clarke, Mrs. M.	4 Gardens Court, Parkstone Road, Poole BH15 2NX
1927	*Clay, R. C., M.D., F.S.A.	The Manor House, Fovant, Wilts
1969	Clay, Miss S. M.	Ashsted Hotel, Sea Road, Boscombe
1969	Clift, Mrs. C. H.	11a Herbert Road BH4 8HD
1967	Clifton, Mrs. F. A., D.P.H.	3 Tutton Lodge, Stanpit BH23 3LR
1963	Clode, J. C.	11 Oakley Road, Wimborne BH21 1QJ
1966	Coates, J. E.	21 Woodside Road, Ferndown BH22 9LB
1966	Coates, Mrs. D. M.	" "
1958	Cocke, M. H.	18a Penn Hill Avenue, Poole BH14 9LZ
1967	Connell, J. R., A.I.B.	1 Ken Road BH6 3ET
1970	Cooke, F. W.	14 Meadow Close, Ferndown BH22 8RN
1941	LCooper, Mrs. E. M.	125 Queen's Park Avenue BH8 9HA
1951	LCooper, Miss R. I.	" "
1945	Cooper-Hunt, Mrs. E. G.	40 Marine Drive East, Barton-on-Sea BH25 7DX
1952	Corser, Miss G. M.	3 Aspen House, Elm Grove Place, Salisbury
1970	Cowell, H. F.	62 Hurn Way, Christchurch BH23 2NY
1970	Cowell, Mrs. E. J.	" "
1948	Cox, Mrs. E. D.	248 Castle Lane BH8 9TT
1956	Cox, Miss M. G. E.	4 The Maitlands, 8 Portarlington Road BH4 8BT
1970	Crabb, Mrs. P. G.	Brinsons Farm, Burton, Christchurch
1969	Crews, W. E., B.Sc.	29 Anthony's Avenue, Poole BH14 8JQ
1966	Cromey-Hawke, Mrs. D.	38 Elgin Road BH3 7DH
1959	Cutland, W.	Flat 11, Guy's Close, Addison Square, Ringwood BH24 1PQ
1959	Cutland, Mrs. H. M.	" "
1969	Czech, Dr. H., M.I.BIOL.	61 Crescent Lane, Clapham, S.W.4
1960	Dalrymple-Watt, Lady G. V.	1 Berwick Road BH3 7BB
1968	Davis, Miss D. W.	49 Norton Road BH9 2PY
1964	Day, Mrs. A.	15 Bosley Way, Christchurch BH23 2HF
1967	Deacon, Miss M. G. K.	42 Belmont Road, Poole BH14 0DB
1930	*de Castro, H.	72 Springdale Avenue, Broadstone BH18 9EX
1935	Derry, Mrs. H. E.	33 Belle Vue Crescent BH6 3BW
1962	Dickson, A. A.	23 Sandy Lane, Upton BH16 5EJ
1970	Dixon, Miss A. N.	13 St. James' Square BH5 2BX
1970	Dixon, Miss C. M.	" "
1949	Dixon, Miss H. C.	Meyrick Grange Hotel, 50 Christchurch Road BH1 3PE
1970	Dodds, J. J., B.A.	B4 Halebrose Mansions, Belle Vue Road BH6 3DU
1969	Domoney, Mrs. M. A.	79 Hankinson Road BH9 1HP
1960	Dool, Mrs. N. M.	55 East Howe Lane BH10 5HY
1970	Dowland, C. J.	49a St. Catherine's Road BH6 4AQ
1968	Dowland, Mrs. M. M.	" "
1969	Downe, Mrs. F. E.	67 Portchester Road BH8 8JX
1961	Draper, Mrs. G.	68 St. Alban's Avenue BH8 9EQ
1953	Dudley, D. J.	17 Widdicombe Avenue, Poole BH14 9QW

1955	Dudley, Mrs. I.	
1969	Dyke, Mrs. R.	9 Nairn Court, Nairn Road BH3 7BE
1967	Earl, Mrs. J. C.	10 Merriefield Drive, Broadstone BH18 8BP
1953	Eaton, Mrs. V. W.	12a Alum Chine Road BH4 8DX
1969	Edgecombe, Miss M. H. L.	2 West Cliff Court, Verwood Crescent BH6 4JE
1956	Edmonds, Miss K. E.	74 Namu Road BH9 2QZ
1965	Edwards, Brig. A. B. D., C.B.E., M.C.	234 Burlington Hotel BH5 1AD
1969	Edwards, Miss G. M.	119 Craigmoor Avenue BH8 9LT
1967	Eisner-Heublum, Mrs. A., PH.D.	5 Pandora Road, N.W.6
1963	Elliott, Mrs. D.	85 South Road BH1 4PB
1969	Elliott, T. A.	5 Chalfont Avenue, Christchurch BH23 2SB
1969	Elliott, Mrs. E.	
1968	Ensor, Mrs. B. L.	31 Brudenell Avenue, Poole BH13 7NW
1955*†	vExton, Miss F. M., B.A.	Far Hills, Bestwall Crescent, Wareham BH20 4JB
1959	Falvury, P.	13 Warren Road BH4 8EZ
1953	LFarwell, Mrs. S. M. A.	Latch Farm, Fairmile, Christchurch BH23 2LB
1963	Field, A. J., M.C., B.SC., F.I.M.	85 Lower Blandford Road, Broadstone BH18 8NS
1963	Field, Mrs. E., B.SC.	
1965	Fildes, F. C.	32 Clifton Road, Poole BH14 9PP
1965	Fildes, Mrs. E. M.	
1966	Fitch, Miss E. N.	Bourne Hall Hotel, Queen's Road BH2 6BD
1965	Foley, Miss E.	27 The Chantry, Madeira Road BH1 1QS
1954	Follett, Mrs. V.	Windward, Stevenson Crescent BH14 9NU
1962	Foote, H. N., D.OPT.	7 The Knapp, Shaftesbury
1963	Fox, Mrs. V.	1 Clifton Court, Heathcote Road BH5 1EY
1970	Franklin, Mrs. B. S.	A6 San Remo Towers, Sea Road BH5 1JR
1963	Freeman, Miss R. C.	10 St. Augustin's Road BH2 6NX
1968	French, A. H.	36 Dulsie Road BH3 7EA
1957	Galbraith, Mrs. A.	5 Lynwood Court, Drysgot Road, Radyn, Cardiff CF4 8BU
1968	Gallant, Miss E. D.	245 Burlington Hotel BH5 1AD
1956	Gandy, Mrs. L.	11 Cranleigh Gardens BH6 5LE
1963	Goldie, Mrs. C. D. M.	20 Balcombe Road BH13 6DY
1959	Gompel, M. E., B.SC.	12 Chigwell Road BH8 9HW
1937	Gompel, Mrs. M. K.	
1960	Good, Prof. R., M.A., SC.D.	8 Durlston Road, Poole BH14 8PQ
1960	Good, Mrs. P. G.	
1949	Goodhart, Mrs. M. S.	West Thorpe, Lymington
1963	Graham, Miss C.	16 Church Road BH6 4AT
1965	Grange-Bennett, Mrs. M.	6 Brudenell Avenue, Poole BH13 7NW
1953	Gray, Miss E.	44 Edmondsham House, Terrace Road BH2 5NJ
1967	Green, Mrs. E. I., B.A.	27 Southleas Avenue BH6 3AD
1956	Green, Miss G. M., B.A., LèsL.	17 Clifton Road, Poole BH14 9PW
1967	Griffiths, H. D., M.A.	C23, San Remo Towers BH5 1JT
1969	Grimes, Miss J.	13 Pelham, Lindsay Road, Poole BH13 6AN

1961	Haines, Miss E. S.	"Little Orchard", Godshill, Fordingbridge
1951	Haines, Miss G. M.	Appleslade, Linwood, Ringwood BH24 3LX
1951	Haines, Miss R. M.	" "
1962	Hall, Mrs. E., B.Sc.	16 Beresford Road BH6 5AA
1959	Hards, Mrs. D. K.	B14 Twynham Court, 20 Dean Park Road BH1 1HY
1960	Hardy, Miss L. H.	20 The Grove BH9 2TR
1955	*vHarris, H. V.	15 St. Winifred's Court, St. Winifred's Road BH2 6NY
1958	Harris, Mrs. W. I.	" "
1961	Harvey, Mrs. F. E., M.B., CH.B.	C21 San Remo Towers BH5 1JT
1959	Harvey, Miss G. E. J.	37 Redhill Court, Wimborne Road BH10 7DH
1964	Hatton, R. H. S., M.A.	The Small House, Llangennith, Glam. SA3 1JA
1951	Hawker, Mrs. E.	64 Alumhurst Road BH4 8EU
1951	Hayman, Miss M. S.	39 Queen's Park South Drive BH8 9BJ
1969	Hayter, Miss E.	38 Edgehill Road BH9 2PQ
1970	Heales, H. C., J.P., F.B.S.	23 Albemarle Road BH3 7LZ
1970	Heales, Mrs. V. A.	" "
1954	Hermon, J. A.	43 Stourcliffe Avenue BH6 3PU
1968	Hills, Mrs. W.	271 Burlington Hotel BH5 1AD
1962	Hipperson, Miss M.	69 Headswell Avenue BH10 6JZ
1970	Hodges, C. G. H.	8 Skipton Close, Broadstone BH18 8HA
1962	†vHodson, Prof. F., PH.D., F.G.S.	Geology Dept., University of Southampton SO9 5NH
1960	Holbrook, H. S., B.Sc., C.ENG., F.I.E.E.	Fernbrake 'B', 3 Branksome Wood Road BH2 6BT
1952	*Holroyd, G.	4 Beechey Road BH8 8LH
1961	Hooton-Smith, E. W.	36 Wellington Road BH8 8JW
1961	Hooton-Smith, Mrs. B. E.	" "
1967	LHorne, Miss E., M.A.	4 Rowena Road BH6 3AE
1968	Hughes, D. H.	278 Burlington Hotel BH5 1AD
1968	Hulme, Miss D.	D11, Pine Grange, Bath Road BH1 2PJ
1969	Hunt, Mrs. E. M.	48a Wimborne Road BH3 7AD
1957	Hunt, W. H.	Flat 1, 5 Alton Road, Poole BH14 8SJ
1954	*†vHunt, Mrs. A. K., B.Sc.	" "
1969	Hutton, Mrs. J. L.	10 Bure Park, Christchurch BH23 4EF
1952	Imlach, Mrs. M. G., B.A.	2 Redcotts, Wimborne BH21 1EU
1969	Jackson, Mrs. J. C.	31 Western Road, Poole BH13 7BH
1968	James, Mrs. D. M.	60 Wentworth Avenue BH5 2EG
1933	James, Mrs. M. G.	70 St. Alban's Avenue BH8 9EQ
1960	James, W. H.	19 Donnelly Road BH6 5NW
1945	Jenkins, Miss P.	School Cottage, Hinton BH23 7DX
1970	Jenkinson, I. R.	36 Bargates, Christchurch BH23 1QL
1970	Jones, Miss L. V. D.	41 Christchurch Road BH1 3NS
1962	Jones, Miss O. E. C., S.R.N.	86 Hoburne Farm Park, Christchurch BH23 4HU
1928	Kendall, Miss G. J., A.R.C.M.	62 Churchfield Road BH15 2QP
1970	Kent, H. M., B.Sc.	62 Canberra Road, Christchurch BH23 2HW
1970	Kent, Mrs. M.	" "
1963	Kenworthy, Mrs. J. S. G.	8 Ripon Road BH9 1RD
1968	Kernot, Miss F. L.	5 Queen's Park Road BH8 9BP
1965	Kilby, Miss M.	15 Southlands Avenue, Corfe Mullen BH21 3JB

1965	Killick, Mrs. K. D.	4 Highland Road, New Milton BH25 7BN
1969	King, Mrs. A. T.	5 Mornish Road, Poole BH13 7BY
1967	King, Mrs. M. V. B.	66 Albany, Manor Road BH1 3EN
1968	Laberge, Mrs. M. A., B.A.	10 Radcliffe Court, Manor Road BH1 3HH
1968	Laidlaw, W.	14a Newstead Road BH6 3HJ
1968	Laidlaw, Mrs. M.	" "
1959	Lawes, A. V.	48 Seafield Road BH6 3JF
1962	Leake, Mrs. I. B.	21 Langside Avenue BH12 5BN
1970	Ledger, A. L.	7 Albemarle Road BH3 7LZ
1966	Lee, W. H.	18 Ravenshall, West Cliff Road BH4 8AT
1967	Lee, Mrs. L. B.	" "
1966	Legge, Mrs. I.	E13, San Remo Towers BH5 1JY
1948	Leonard, Mrs. N.	1 Neville Court, Derby Road BH1 3QB
1957	Le Roy, Miss E. S. H.	Forest Mead, Tyrrell's Ride, Burley BH24 4DA
1957	Le Roy, Miss M. C. G.	" "
1958	Le Sueur, Mrs. D. G.	49 Wellington Road BH8 8JJ
1965	Lever, Mrs. M. E.	54 Hoburne Farm Park, Christchurch BH23 4HR
1961	Lewis, Miss D. M.	C2 Twynham Court, Dean Park Road BH1 1JB
1966	Lewis, Miss S.	31 Greenways, Highcliffe BH23 5BB
1970	Lilly, Mrs. P.	78 St. Luke's Road BH3 7LU
1970	Loader, Miss M.	31 Arcadia Road, Christchurch BH23 2JF
1947	Logan, Miss A.	3 Grosvenor Court, Vale Road BH1 3TA
1969	Lothian, Mrs. M.	42 Bryanstone Road BH3 7JF
1934*†	vLowther, Miss D. M., B.SC.	15 Mayfield Avenue BH14 9NY
1970	Lyon, Mrs. B.	12a St. Winifred's Court, St. Winifred's Road
1969	McAlpine, Miss G., B.A.	10 Western Avenue, New Milton BH25 7PZ
1956	McClay, H.	64 Blake Dene Road, Poole BH14 8HH
1965	MacDonald, Miss C. M.	15 Dingle Road BH5 2DP
1970	McNish, Mrs. B.	61 Irving Road BH6 5BH
1956	Maddox, Mrs. L. M	31 Egerton Road BH8 9AY
1969	Mansfield, J. H. O.	28 Barrie Road BH9 2XE
1970	Mansfield, Mrs. F. M.	" "
1959	Mariette, Miss G. A.	4 Mansfield Avenue, Poole BH14 0DQ
1946	Marshall, Miss D. H.	76 Palace View, Bromley, Kent
1967	Martin, F. B., F.C.I.I.	C25 San Remo Towers BH5 1JT
1969	Martin, Mrs. F. J.	22 Derby Road BH1 3QA
1968	Martin, Mrs. P.	45 The Avenue BH9 2UW
1969	AMartin, C. J.	" "
1964	LMasters, Miss K. F.	10 West Way Close BH9 3DR
1970	Masters, Capt. L. H. J., R.N. (Retd.)	15 Fairways, Ferndown BH22 8BA
1970	Masters, Mrs. B. J.	" "
1958	Mate, Mrs. F. M.	8 Clifton Road, Poole BH14 9PP
1956	Middlemast, A. H.	86 Hengistbury Road BH6 4DJ
1956	Middlemast, Mrs. M.	" "
1964	Middleton, W. J.	34 Compton Avenue, Poole BH14 8PY
1956	Mills, Miss N.	35 Compton Avenue, Poole BH14 8PU
1959	Mitton, J. C.	3 Gainsborough Road BH7 7BD
1957	Moore, W.	139 Alder Road, Poole BH12 4AA
1959	Morgan, Commander S. T., O.B.E., R.N. (Retd.)	Bracken Cottage, Blissford, Fordingbridge
1963	Moss, F. W.	7 Kingfisher Court, Highfield Road, Southampton SO2 1UN
1962	Mott, Miss J. H.	2 Warren Avenue, Mudeford BH23 3JX

1965	Murch, Mrs. O. E.	4 Highlands Road, New Milton BH25 7BN
1970	Musther, J. A.	3 Pendennis, 7 Derby Road BH1 3PU
1970	Musther, Mrs. L.	" "
1960	Nelson, A., F.C.A.	65 Alyth Road BH3 7HE
1970	Newbury, Miss D.	2 Oban Road BH3 7BG
1967	Nicklen, Mrs. L. V.	77 Holdenhurst Avenue BH7 6RB
1968	Noll, Miss C. F.	2 Pinecliff Avenue BH6 3PZ
1957	Odell, Mrs. G. B.	Cottonwood, 81 Grove Road BH1 3AP
1965	Odlum, Dr. D., M.A., M.R.C.S., L.R.C.P., D.P.H.	11 Cliff Drive, Poole BH13 7JE
1964	Odom, Miss E. V., M.A.	18 Church Road BH6 4EB
1970	Offen, E. C.	4 Ranelagh Road, Highcliffe BH23 5DY
1970	Offen, Mrs. M. J.	" "
1948	Ogden, F.	Cottonwood, 81 Grove Road BH1 3AP
1950	Ogle, Miss U. M.	2 Frankland Crescent, Poole BH14 9PX
1968	Padwick, H. N.	12 Arlington House, Clarendon Road BH4 8AJ
1968	Padwick, Mrs. M. D.	" "
1958	Page, W. E., M.A.	53 Petersfield Road BH7 6QQ
1969	Parkinson, J. G.	45 Belle Vue Road BH6 3DF
1969	Parkinson, Mrs. M. K.	"
1968	Parsons, Miss M. W.	40 Ashton Road BH9 2TW
1963	Payne, Miss H. I.	83 St. Luke's Road BH3 7LS
1970	Peake, E. C.	582 Ashley Road, Poole BH14 0AQ
1916	*LPenrose, Miss F.	Little Picket, Hightown, Ringwood BH24 3HH
1916	*LV†Penrose, Miss M., B.SC.	" "
1948	Perceval, Mrs. W.	7 Benellen Avenue BH4 9LU
1963	Perry, W. F., B.SC.	117 Portland Road BH9 1NG
1961	Pesterfield, Miss M.	56 Gresham Road BH9 1QS
1953	Pickering, V. T.	Francesca, Hightown, Ringwood BH24 3DY
1953	Pickering, Mrs. C. G.	" "
1959	Pierce, Mrs. E. K.	4 Mansfield Avenue, Poole BH14 0DQ
1959	Piper, P. J., F.R.I.C.S.	10 Alverton Hall, 33 West Cliff Road BH4 8AZ
1966	Pither, C. M., F.R.A.S., F.I.L.S.	86 Canberra Road, Christchurch BH23 2HW
1966	Poole, Mrs. I.	23 Spur Hill Avenue, Poole BH14 9PH
1967	Prideaux, Miss C.	28 Ravine Road, Poole BH13 7HY
1964	Prince, Miss E. M., S.R.N.	4 St. James Sq., New Mills, Nr. Stockport
1969	Pryor, R. A.	8a Queen's Park West Drive BH8 9BY
1968	Pugh, Mrs. E. M.	1 Woodside Close, Ferndown BH22 9LG
1967	Purdy, Mrs. K. M.	158 York Road, Broadstone BH18 8EZ
1951	LRead, Mrs. H. A.	15 Carbery Avenue BH6 3LL
1957	Reakes, Rev. G. S., B.A.	The Cottage, 7 The Avenue, Poole BH13 6AA
1957	Reakes, Mrs. K. A.	" "
1967	Richardson, Miss A. K.	31 Pinewood Road, Poole BH13 6JP
1966	Robbins, Miss R., M.SC.	52 Burton Court, Chelsea, S.W.3
1949	Robertson, Mrs. M.	41 Christchurch Road BH1 3NS
1969	Robinson J., B.SC.	39 De Lisle Road BH3 7NG
1970	Robinson, Mrs. K. E.	" "
1964	Rose, Mrs. D., M.A.	5 East Avenue BH3 7BP
1967	Rosemond, S. J., F.I.L.	c/o Westminster Bank, 27 Old Christchurch Road BH1 1DZ

1963	Rossiter, Mrs. D., M.	5 Park Homer Road, Colehill, Wimborne BH21 2SP
1959	Rowe, Miss F.	112 Belle Vue Road BH6 3BH
1970	Rowe, Miss L. M.	23 The Bluff, Headswell Crescent BH10 6LQ
1969	Rule, Mrs. I. E.	Overdale, Woodend Road, Crow Hill, Ringwood BH24 3DG
1963	Rushton, Miss K. M., M.SC., M.B., CH.B.	20 Greenways, Highcliffe BH23 5BD
1967	Rushton, W.	" "
1967	Russell-Cotes Museum	*see Bournemouth Museums*
1951	wSalisbury, Sir E., D.SC., F.R.S., F.L.S.	Croindene, Strandway, Felpham, Bognor Regis, Sussex
1970	Sanders, Miss E. M., M.A.	65 St. Alban's Avenue BH8 9EG
1954	Saunders, Miss W. A.	11 Portman Crescent BH5 2ER
1970	Scott, S. A.	6 The Close, Charlton Marshall, Blandford
1970	Scott, Mrs. L. G.	" "
1970	Scott, W.	66 Ashley Road, New Milton BH25 5BW
1970	Scott, Mrs. I.	" "
1967	Screeton, Miss G. M.	17 Florence Road BH5 1HH
1970	Searle, C.	8 Mansfield Close, Ferndown
1960	Sephton, Mrs. N., M.B., CH.B.	Flat 1, 4 Talbot Avenue BH3 7HU
1951	Sewell, Mrs. I.	4 Maundeville Crescent, Christchurch BH23 2EW
1941	Sexton, Miss F.	60 Uplands Road BH8 9SS
1966	Shelton, Miss V. A.	112 Lowther Road BH8 8NS
1970	Sherbourne, J.	13 Surrey Gardens, BH4 9HY
1970	Sherbourne, Mrs. A.	" "
1968	Shewell, Capt. A. V.	E46, San Remo Towers BH5 1JY
1937	Simmons, Mrs. I. M.	73 Spur Hill Avenue BH14 9PJ
1963	Simpson, Mrs. C.	Flat 46, Sunningdale, 28 Braidley Road BH2 6JX
1920	Simpson, N. D., M.A., F.L.S. F.R.M.S.	3 Cavendish Road BH1 1QX
1959	Slieker, Miss H. R. M.	133 Seafield Road BH6 3JL
1970	Smith, G.	1 Beechwood Lodge, 24 Portarlington Road BH4 8BY
1970	Smith, Mrs. G. M.	" "
1959	Soar, Miss I. M.	11 Grosvenor Road BH4 8BQ
1962	Sparks, Miss A.	12 Joanna Close, Downton, Salisbury
1962	Sparks, Miss M.	" "
1965	Staples, E. G., M.A.	7 Lindsay Park, Lindsay Road, Poole BH13 6AW
1970	Stent, Flight-Lieut. G.	Firtrees, Surrey Road
1970	Stent, Mrs. D.	" "
1969	Stephens, Mrs. G. B.	24 Cavendish Road BH1 1RF
1962	Stiff, Miss F. A.	A16, Twynham Court, Dean Park Road BH1 1JB
1967	Strain, W. S., M.A.	65 Farm Lane, New Milton BH25 7BP
1967	Strain, Miss A. W.	" "
1956	Stray, J. F.	21 Barton Lane, New Milton BH25 7PJ
1957	Stray, Mrs. S. V. M.	" "
1969	Suckling, Mrs. D.	Derby Hall Hotel, Knyveton Road
1950	Sworder, Miss R.	c/o Barclay's Bank Ltd., 659 Christchurch Road BH5 1ED
1969	Sykes, Miss R. B.	4 Crescent Road BH2 5SS
1962	Tarrant-Willis, F. E.	52 St. Osmund's Road, Poole BH14 9JX
1955	Taylor, Mrs. B.	164 Belle Vue Road BH6 3AH

1969	Taylor, Mrs. H.	14 Braidley Road BH2 6JX
1967	Teasdill, Graham, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.	99 Carbery Avenue, Southbourne BH6 3LP
1967	Teasdill, Mrs. Nova, A.	" "
1965	Thomas, W. C.	Oriens, Dilly Lane, Barton-on-Sea BH25 7DQ
1965	Thomas, Mrs. G. M., M.A., B.LITT.	" "
1964	Thorne, Mrs. M., B.A.	2 Chestnut Avenue, Uddens, Wimborne BH21 7NG
1966	Till, N. W. L.	165 Manor Road, Verwood BH21 6DX
1966	Till, Mrs. A. M. E.	" "
1965	Todd, Miss E. Crichton	36 Alumhurst Road BH4 8ER
1968	Turner, D.	5 Netherhall Gardens BH4 9EL
1949	*Turner, G. A.	4b Wimborne Road BH2 6NG
1959	Tyler, E. F.	43 Brackendale Road BH8 9HY
1968	Vaughan, Miss J. M.	29 Barrie Road BH9 2XE
1968	Wagstaff, Miss V. D.	38 Westfield Road BH6 3AR
1961	Waldy, Mrs. V. M.	The Paddocks, 21 Dover Road BH13 6DZ
1967	Walker, Mrs. G., M.B., CH.B., D.P.H., B.SC.	E16, San Remo Towers BH5 1JY
1966	*Walker, H. G., LL.B.	Manor Farm, Wootton, New Milton BH25 5TP
1955	Walker, Mrs. L. W.	12 Fernbank, St. Stephen's Road BH2 6JP
1961	Wallace, Miss J. B., B.SC.	10 St. Ives Park, Ringwood BH24 2JY
1961	Wallis, Miss M. E.	2 Warren Avenue, Mudeford BH23 3JX
1947	West, Miss G. M.	The Knapp, Studland BH19 3AE
1961	Weston, Miss S. A.	48d West Cliff Road BH4 8BB
1924	*Whitaker, Miss E. M.	22 Somerset Road BH7 6JH
1924	Whitaker, S. E., A.R.I.C.S.	22 Selwood Road, Addiscombe, Croydon
1963	White, Miss D. L. M.	23 Pinewood Road BH13 6JP
1963	White, Miss J.	" "
1970	Whitmarsh, I. E. B.	4 Kingfisher Caravan Park, Wimborne Road BH10 7BW
1967	Wilks, Miss A. E. M.	3 Shorefield Way, Milford-on-Sea
1970	Williams, R.	62 The Avenue, Oak Tree Farm, St. Leonards, Ringwood
1956	Wise, Mrs. B.	55 Namu Road BH9 2QY
1960	Withers, A. E., F.A.I.	E41 San Remo Towers BH5 1JY
1960	Withers, Mrs. D. E.	" "
1948	AWood, Miss E. B., B.SC.	4 New Park Road BH6 5AB
1958	*Wood, F. J.	15 Boscombe Spa Road BH5 1AP
1956	Wood, T. E., M.A., LL.B.	21 Durley Chine Road BH2 5JT
1970	Woods, Mrs. D.	13 Leybourne Avenue, BH10 6ES
1967	Workers' Educational Assoc.	2 Wolverley Court, 31 Marlborough Road BH4 8DF (Hon. Sec.)
1949	*†vWray, D. A., PH.D., M.SC., F.G.S.	42 Canford Cliffs Road, Poole BH13 7AA
1956	Wray, Miss J., S.R.N.	" "
1946	Wycherley, Mrs. L.	11 Hayes Avenue BH7 7AD
1965	Yorke, Mrs. N. M.	15 Dingle Road BH5 2DP
1967	Young, Mrs. G.	3 South Court, Milford-on-Sea SO4 0QS
1958	Yule, Mrs. M. P.	Little Orchard, Godshill, Fordingbridge

It is with deep regret that we have to announce that during the past year the following members have died (the figures in brackets is the year of joining the Society): — Miss E. Burrows (1966), Mrs. V. Morgan (1959), Miss D. K. Oliver (1965), Mr. J. Birchenough (1968), Miss A. M. Young (1964), Mr. A. J. Butcher (1952)*, Brig. F. E. W. Venning, C.B., C.B.E., D.S.O., M.B.O.U. (1950), Mr. James Fisher, M.A., F.L.S., F.Z.S. (1951).

* *See Obituary page* 76.

AFFILIATIONS

The Society subscribes to the following organisations: — National Trust, Botanical Society of the British Isles, Council for British Archæology, Council for British Ornithology, Hampshire and Isle of Wight Naturalists' Trust, Dorset Naturalists' Trust, South-Eastern Area Museum Service. The Society is affiliated to The British Association for the Advancement of Science.

Obituary

Our Society sustained a sad blow by the sudden death of Albert John Butcher, F.R.I.B.A., our Honorary Architect, on 20th July 1970 whilst on a pleasure cruise to the Azores. He was buried at sea with due honours.

Mr. Butcher was born at Bath in 1891 and educated at Merchant Venturers School, Bristol, specialising with a view to a career as an architect. He qualified as A.R.I.B.A. and practised at Harrow Weald and later at Edgeware and was elected F.R.I.B.A. One of his personal achievements was the replacement of rotting beams at Compton Chamberlayne to preserve without damage the valuable Adams ceiling. During the second World War he did admirable work in camp erection and civilian re-housing and using his special knowledge of conduction of water supplies.

He retired from Edgeware in 1948 and settled in Ferndown in 1950 and joined the Society in 1952 where he immediately made friends and gave advice on matters relating to our buildings. In fact he became our Honorary Architect and Surveyor in which voluntary post he was outstanding both in planning and often active manual work. His zeal and never-failing help became one of our Society's greatest assets. Notably, in 1960 onwards, when finances allowed alteration and restoration of much of our premises, his efforts were invaluable. He was awarded Honorary Membership and elected President for 1965-66 and continued to earn our gratitude to the last.

Mr. Butcher was respected as a Rotarian, being President both at Edgeware and Wimborne. His other chief interests were travel and photography, his skill in the latter enabling him to produce many fine lectures notable especially for colour presentation of ecclesiastical architecture, decoration and windows.

He was married in 1924. To Mrs. Butcher, his daughter and his grandchildren our Society's deep sympathy is extended. He will be badly missed by all of us, both in his official capacity and by his friends, of whom he earned so many by his sincere and generous character.

Presidential Address

Coins Through the Centuries

by GRAHAM TEASDILL, F.M.A., F.R.S.A., F.R.N.S., F.Z.S.

Delivered before the Society on the 10th October 1970 under the title "Coins in Bournemouth"

Our early human ancestors had no money. They lived a primitive form of life, hunting or trapping other animals for food and then making clothing out of their skins. These skins were extremely durable and they became highly prized possessions. As time went on men began to specialise in individual activities such as hunting, fishing, basket making, flint knapping or making pottery and a system of barter developed whereby they all exchanged their products with one another so that the potter had meat to eat and the fisherman had a basket in which to carry his fish. If, however, the fisherman already had too many baskets and the hunter didn't need one, the basket maker would go hungry unless he had something else that one of the food collectors wanted. Animal skins, being durable and highly prized, were always acceptable and in this way they came to be used as a means of storing wealth as well as spending it; that is to say, they became a Commodity Currency.

To be used as a medium of exchange a commodity must possess three basic qualities, it must be durable, divisible and of reasonable intrinsic value and our ancestors were not slow to realise that the precious metals such as gold and silver possessed all these and in addition could be melted and cast into a variety of shapes and sizes far more attractive to possess than a large collection of crudely cured animal skins.

Each piece of metal had to be weighed every time it was used as currency and about 670 B.C. King Gyges of Lydia, one of the States of Ancient Greece in what is today Turkey, authorised the manufacture and marking of small pieces of metal of equal and uniform weight. This was a tremendous step forward, saving traders time, anxiety and frustration and in this way the very first *coin* was issued. These were *staters*, made of electrum, a natural alluvial form of roughly 75% gold and 25% silver panned from the river Pactolus on which Sardes the capital of Lydia was situated. The coinage was soon copied by other Ancient Greek States such as Argos (Aegina), Athens and Corinth and Greek coins circulated by trade over most of the Mediterranean coastlands.

In the 4th century B.C. Macedon replaced Athens as the principal state in the Greek world and gold *Staters* of Philip II (359-336 B.C.) and his son Alexander the Great (336-323 B.C.) circulated from Britain to Northern India and from Scandinavia to the Sahara Desert. Early British coins were rather crude copies of these Macedonian *staters*, frequently copied from Gaulish issues which were themselves copied from the Greek. The most famous Ancient British King was **Cunobelin**, who minted coins at Colchester. He was the son of **Tasciovanus** and father of **Caratacus** and ruled the Catuvellauni from 10 to 40 A.D. His coinage spread to Kent and specimens have even been found in Dorset.

Bournemouth, together with West Hampshire, Dorset, Somerset and Wiltshire, was occupied by the **Durotriges.** They used coins in silver and

bronze copied from the gold *staters* and most of them are believed to have been minted in Bournemouth at Hengistbury Head. 616 of these coins were found with 61 Roman coins in a hoard at Holdenhurst by a Mr. Kilmester, who was out ferreting in January 1905. Over 3,000 of these coins were found during the 1911 excavations of Hengistbury Head under Mr. J. P. Bushe-Fox. From the presence of Roman coins in the Holdenhurst hoard it is evident that the Durotrigian coins probably remained in use until about 138 A.D. The Durotriges were of true Ancient British stock unaffected by the Belgic Invasions of circa 75 B.C. and circa 54 B.C. The former was centred around the Thames Valley and the latter, although via the Solent and the Test and Itchen Valleys, spread north-eastwards into Berkshire. It is particularly exciting that in addition to Hengistbury Head, archæological evidence has now revealed the presence of a Durotrigian Village settlement on the East Cliff quite close to the Russell-Cotes Art Gallery and Museum.

The Roman coinage had its origin in the circulation of crude pieces of bronze to represent wealth during the sixth century before the birth of Christ. They were found to be extremely useful in trade and soon replaced the cattle, which had previously been the main medium of circulation and means of reckoning wealth. These crude pieces of bronze, *Aes Rude* as we call them, were replaced by the *Aes Signatum*, pieces of more convenient size resembling seals, and about 300 B.C. these in turn were replaced by the *Aes Grave*, cast coins of six different denominations ranging from the *As* of twelve Unciæ to the *Uncia* itself. Each of these coins depicted the prow of a ship on the reverse, probably symbolic of a trading nation, whilst the obverses depicted various Gods or Goddesses:

Janus	on the	*As*	of 12 Unciæ
Jupiter	on the	*Semis*	of 6 Unciæ
Minerva	on the	*Triens*	of 4 Unciæ
Hercules	on the	*Quadrans*	of 3 Unciæ
Mercury	on the	*Sextans*	of 2 Unciæ
Roma	on the	*Uncia*	

By 300 B.C., the Romans had thus a highly developed system of currency; but whilst this was quite adequate for internal requirements the Roman Traders found themselves at a disadvantage compared to their Greek rivals. The gold *stater* and silver *drachma* were a much more attractive proposition in trade than the bronze *Aes Grave* and about 280 B.C. the Romans introduced a silver *drachma* of Greek style for trading purposes. This coin gradually came into general internal use and by the end of the Punic Wars in 146 B.C. it had become the standard Roman coin under the latin name *Denarius*. Two further silver coins were also added to the series:

Denarius	of 10 Aes
Quinarius	of 5 Aes
Sestertius	of $2\frac{1}{2}$ Aes

These coins remained the standard issue until the end of Republican Rome and many of them have been found in British hoards suggesting

that their use in trade was extensive and that they remained in circulation for a number of years under Imperial Rome.

The Emperor Augustus, who in 27 B.C. became the first real Roman Emperor, completely reorganised the coinage by introducing an extensive system of denominations including gold coins, the first time that coins of that metal had been issued by the Romans for permanent and general circulation. His coinage system is chiefly remarkable for the introduction of bimetalism and token money; bimetalism by pegging his system to the market value of both gold and silver and token money in regard to the bronze issues by issuing coins which did not contain their full face value in metal. The Emperor's successful introduction of the principle of token money can probably be accounted for by the attractive appearance of his new alloy *orichalcum*, which contained a proportion of zinc, giving it a beautiful yellow colour.

Gold	*Aureus*	of 25 Denarii
Gold	*Quinarius*	of $12\frac{1}{2}$ Denarii
Silver	*Denarius*	of 16 Aes
Silver	*Quinarius*	of 8 Aes
Orichalcum	*Sestertius*	of 4 Aes
Orichalcum	*Dupondius*	of 2 Aes
Copper	*As*	
Copper	*Quandrans* or $\frac{1}{4}$ As	

This was the system of currency which was carried into Britain by the invasions of 43 A.D. under the Emperor Claudius and carried into Northern England by the Agricolan invasion about 69 A.D.

In Britain it replaced various tribal currency mainly consisting of gold *staters* and silver pieces, which had been based upon the staters and *drachmæs* of Greece, introduced through Gaul as a result of trade, as already described.

The coinage remained stable until about 64 A.D. but from that time on it was gradually debased, probably in order to help pay for the numerous wars which were almost a characteristic of the Roman civilisation. The gold *Aureus* declined from 41 to the pound of gold under Augustus (27 B.C. to 14 A.D.) to 90 to the pound under Valerian (254-260 A.D.). The silver *Denarius* shows a similar decline from 84 to the pound of silver under Augustus to something like 145 to the pound of silver by the middle of the third century and the effect is made more acute by the fact that the 99% silver alloy of Augustus had been reduced to 70% silver even by the middle of the second century.

The Emperor Caracalla who succeeded to the throne jointly with his brother Geta upon the death of their father Septimius Severus at York in 211 A.D. issued a new coin called an *Antoninianus*. This was originally a silver coin valued at two Denarii although from the start it only contained one and a half denarii worth of silver. By the middle of the third century the *Antoninianus* had replaced the *Denarius* as the standard coin and inflation continued until under Gallienus (253-268 A.D.) the coins became copper dipped in silver, a fact that has caused many an archæologist to incorrectly classify them as copper Aes or third brass.

Debasement was not confined to the gold and silver. Orichalcum, which depended upon a little less than a quarter zinc to three-quarters copper for its attractive colour declined to about 5% zinc with tin and lead to dilute the copper, whilst the copper coins themselves were also diluted with tin and lead and reduced in size. It is true that there were attempted reforms under Severus Alexander and Trajanus Decius but these were only pauses in the gradual descent. By 260 A.D. the orichalcum and copper coinage had debased itself out of existence.

The result of so much debasement was the collapse of the currency and prices rocketed out of all proportion, a disaster which cut at the roots of trade and industry.

This state of affairs was brought to an abrupt halt by the strong action of Claudius Gothicus (268-270 A.D.) and his immediate successors Aurelian, Probus, Diocletian and our own Constantinus Magnus, Constantine the Great, the Christian Emperor who was proclaimed at York.

In 295 A.D., Diocletian carried out a coinage reform which restored a gold coin struck at 60 to the pound of gold and nominally a silver coin at 96 to the pound of silver, although the gold coin was generally sold as merchandise and the silver coin may never in fact have been issued for general circulation. The real importance of Diocletian's reform in numismatics is the issue of the silvered bronze *follis* and two similar but smaller coins which may have been half and quarter folles respectively.

By 301 A.D. it is evident that the second brass or half follis was referred to as the Denarius and this is further evidence of the inflation, which had taken place.

Constantine produced a further coinage reform in 312 A.D., introducing a gold *Solidus* at 72 to a pound of gold and a silver *Siliqua* at 24 to the Solidus. The bronze follis and half follis continued to decline in size, their weight declining by half between 295 A.D. and 335 A.D.

The last attempt at coinage reform which concerns us was made by Constantius II and Constans in 348 A.D. to celebrate the eleven hundredth anniversary of the founding of Rome by the famous twins Romulus and Remus who had been brought up by a female wolf. The reform retained the gold *Solidus* and silver *Siliqua,* but introduced the *Miliarensia,* a silver coin valued at two Siliquæ and the *Centenionalis,* a silvered bronze coin. It seems reasonably certain that there were 10 Centenionales to 1 Miliarensia and that this innovation was an attractive way in which to commemorate the year 1100 A.U.C. (Ad Urbe Condita). There was a coin similar to the Centenionalis, which may have been a half centenionalis but it seems unlikely that a coin existed for the smallest theoretical denomination one hundredth of a Centenionalis and one thousandth of a Miliarensia.

The debasement of the copper or bronze coinage evidently continued for in 395 A.D. we find that the Centenionalis was demonetised as a worthless coin by a measure similar to our own withdrawal of the Farthing.

At the time of the abandonment of Britain in 410 A.D., Honorius was issuing a gold *Solidus,* silver *Siliqua* and a number of bronze pieces of varying sizes which may have been silver washed at the time of issue.

The withdrawal of the Roman Legions from Britain by the Emperor Honorius in 410 A.D. caused a breakdown in public confidence in the currency due to the lack of officials and adequate authority to prevent unauthorised debasement and forgery. For nearly two hundred years there was a return to a system of barter and commodity currency. During the sixth century gold *Triens* or *Tremisses* were introduced from Merovingian Gaul, some of these coins being found in the Sutton Hoo Excavations. About 600 A.D. a mint was founded in Canterbury but the coins produced were merely copies of the Byzantine *Triens*. These coins, known as *Thrymsas,* were extensively copied and gradually became debased into a silver coin called a *Sceat*. In Northumbria, a Heptarchical Kingdom stretching from the Humber to Edinburgh, the coin became in time even further debased and survived as a base metal *styca*.

The silver *Penny* was introduced in the middle of the eighth century by King Aethelberht II (748-762) of Kent and being larger though thinner than the *Sceat* it was immediately successful. As scholars still wrote in latin this new coin, copied from the silver *Denier* of Pepin, the father of the Emperor Charlemagne, was known as the *Denarius,* which is why, until 1971, we still used the abbreviation d. for a *Penny*. In 774 Offa of Mercia conquered Kent and the *Penny* soon replaced the Sceat not only in Mercia but throughout Southern and Central England. Then King Ecgberht of Wessex (802-838) became King of all England and the *Penny* replaced the *Sceat* or *Styca* even in Northumbria by the end of the ninth century.

It is really quite surprising that such important historical events as the Danish invasion of 1013 and rule of the Danish Kings Sweyn, Canute and Harthacnut and even the Norman Conquest of England in 1066 caused no significant change in the coinage. Indeed English *pence,* taken back to and copied extensively in Scandinavia, formed the basis of the coinages of Denmark, Norway, Sweden and Finland.

The *Penny* was to survive as the only silver denomination until the reign of Edward I (1272-1307) and if you wanted a *Halfpenny* you simply broke a *Penny* in half and similarly into quarters if you required a Fourthling or *Farthing*. Most of them had a grooved or voided cross as the reverse design in order to facilitate breaking. Edward I issued a new coinage in 1279 which included not only *pence* but *Groats,* round *Halfpence* and round *Farthings*. The *Groat* of fourpence was not very popular and none were issued by Edward II (1307-1327) but the coin was re-issued in 1351 by Edward III (1327-1377) and a *Half Groat* of twopence added to the series.

No further silver denomination was added until Henry VII (1485-1509) issued a *Testoon* or *Shilling* worth 12 pence in 1500. In 1551 Edward VI (1547-1553) added a silver *Crown* and *Halfcrown* of 60 pence and 30 pence respectively and also a *Sixpenny* and a *Threepenny piece*. Elizabeth I (1558-1603) went still further by adding a silver *Threehalfpence* and a silver *Threefarthings*. James I (1603-1625) allowed a Lord Harrington to produce copper *Farthings* instead of issuing Regal silver ones and although copper *Farthings* were also issued under Charles I (1625-1649) it was left to Charles II (1660-1685) to introduce

Regal copper *Halfpennies* and *Farthings* and even to George III (1760-1820) to introduce a Regal copper *Penny* and an unsuccessful copper *Twopence*. In 1937 the silver *Threepence* was joined and indeed by 1945 replaced by a twelve-sided brass *Threepenny* piece at first minted with the head of the Duke of Windsor as Edward VIII.

In 1257 an experimental gold coin was issued by Henry III. Valued at twenty silverpence it was known as a gold *Penny* and although it was little used as currency it made a most attractive piece of jewellery.

Nearly a hundred years later in 1344, Edward III (1327-1377) issued three gold coins, a *Florin* or *Double Leopard* worth 72 pence, a *Half Florin* or *Leopard* of 36 pence and a *Quarter Florin* or *Helm* of 18 pence, but this coinage only lasted a few months. A year later in 1345, England finally managed to reintroduce a regular and permanent gold coinage for the first time since the Anglo-Saxon *Thrymsas*. This new coinage of Edward III consisted again of three denominations, the *Noble* worth 80 pence, the *Half Noble* of 40 pence and the *Quarter Noble* of 20 pence. The value of the *Noble* at 80 pence or 6/8d. became the standard doctors' and lawyers' fee for many years and as one-third of a pound it was a very convenient amount, there being 240 silver pence to a pound of silver. The latin word for a pound is Liber, hence the abbreviation £ in our currency and lb. in our weights and measures tables. Esterlingus was a mediæval "slang" name for the *Denarius* or silver *Penny*, usually written "d" and so Liber Esterlingus or a pound of silver pennies came down to us as the Pound Sterling. In 1465 Edward IV altered the design of the *Noble* to depict the Archangel St. Michael slaying a dragon and the coin thereafter became known as the *Angel*. He also issued a larger gold coin worth 120 pence or half a pound and this was at first called the *Rose Noble* but subsequently abbreviated into *Royal* or *Ryal*. In 1490 Henry VII added an even larger gold coin, the *Sovereign*, so called because it showed him as a Sovereign or King enthroned in splendour. This was valued at 240 pence or one pound but there was also a *Double Sovereign* of 480 pence as well as the *Ryal* of 120 pence, the *Angel* of 80 pence and the *Half Angel* of 40 pence.

Henry VIII's second or Wolsey Coinage rather complicated the position by re-tarrifing the *Sovereign* at 270 pence and the *Angel* at 90 pence making the *Half Angel* 45 pence. He did, however, issue a *George Noble* showing St. George on horseback slaying the dragon, to retain the 80 pence denomination with a *Half George Noble* at 40 pence. Three further gold coins completed the series; a *Crown of the Double Rose* worth 60 pence and a *Crown of the Rose* worth 54 pence, bearing the single rose of Lancashire rather than the Tudor Rose born by the *Crown of the Double Rose* and the *Half Crown* of 30 pence. By the Third Coinage of 1544-47 the *Angel* had risen to 96 pence in value but the *Sovereign* reverted to 240 pence although its weight was reduced. A *Half Angel* of 48 pence and a *Quarter Angel* of 24 pence continued with the *Crown* of 60 pence and the *Half Crown* of 30 pence.

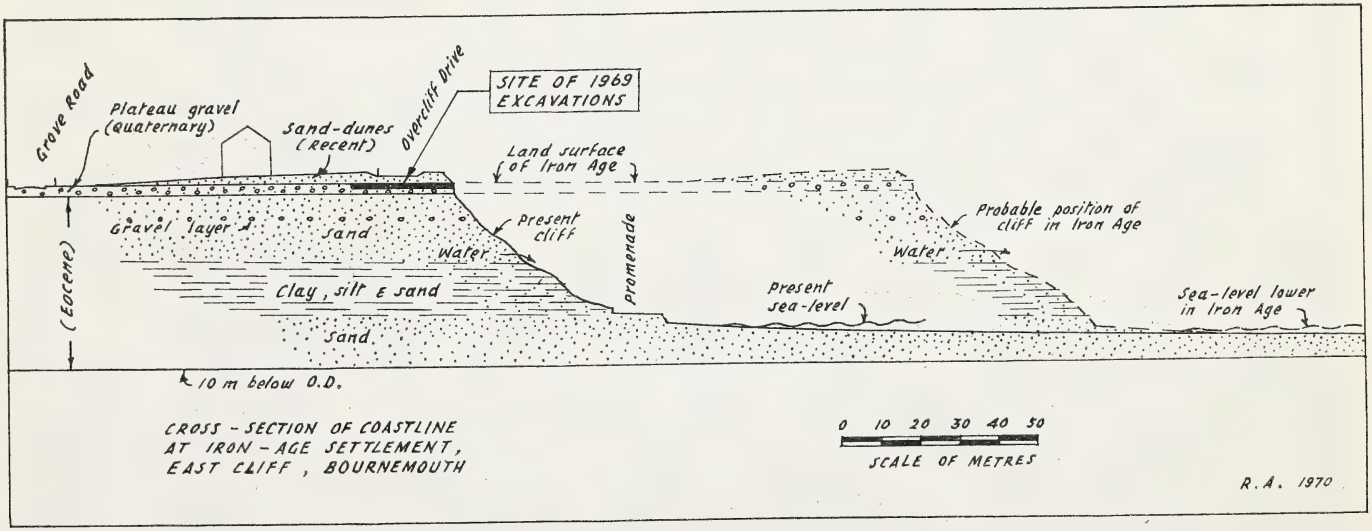
Under Edward VI's Third Coinage of 1550-53 the *Sovereign* was again revalued at 360 pence or 30 shillings and then known as the *"fine" Sovereign* to distinguish it from the ordinary *Sovereign* of 240 pence.

The *Ryal* or *Half Sovereign* became worth 180 pence or 15 shillings and the *Angel* reached 120 pence or 10 shillings.

The 240 pence or 20 shilling denomination then received a variety of names, being termed a *Sovereign, Pound, Unite, Laurel* before giving way in Charles II's milled coinage of 1662-1685 to the *Guinea.* The Africa Company, which operated mainly on the Guinea Coast, supplied the gold for this coinage and in return their badge, the Elephant and Castle, appeared underneath the bust of the King. This earned the gold *Pound* the nickname *Guinea* and a rise in the price of gold resulted in the coin earning a value of 252 pence or 21 shillings, and so it remained until George III's Last Coinage of 1816-1820 when the gold content was reduced and the coin again tariffed at 240 pence and was renamed the *Sovereign.* Gold *Five Guineas, Two Guineas, Half Guineas* and sometimes *Third* and *Quarter Guineas* were issued giving a range of 1160 pence, 504 pence, 252 pence, 126 pence, 84 pence and 63 pence and after 1816 the *Five Pounds, Double Sovereign, Sovereign* and *Half Sovereign* reduced the range to 1100 pence, 480 pence, 240 pence and 120 pence. The gold *Sovereign* itself is still being produced in 1970 at the Royal Mint, mainly for foreign trade and for building up our gold deposits in Swiss Banks. After 14th February 1971 it will be divided into 100 new pence instead of 240 pence but in practise the coin has not circulated freely in Britain since 1914 and since 1966 it has been illegal for British subjects to buy or sell them or possess more than 4 without a special licence from the Bank of England. When they do change hands now it is usually for at least five times their official value.

What will the future hold in store. Decimalisation will be finally introduced on 14th February 1971 after several unsuccessful attempts.

In 1816 the silver crown, halfcrown, shilling and sixpence were reduced in size so that the shilling was the equivalent of the French Franc. In 1849 the *Florin* or *Two Shilling Piece* was first issued as *one-tenth of a pound.* The large copper penny was replaced in 1860 by a smaller one in bronze-brass alloy so that our pennies and halfpennies conformed to continental standards for 10 and 5 Centime pieces. By 1887 pressure for decimalisation had lessened but a *Double Florin* was issued to see if it would become more popular than the Crown. A cupro-nickel *Fifty Pence Piece* has now replaced the ten shilling note but whilst undoubtedly an improvement on mere paper it is but a poor substitute for the gold *Half Sovereign.* Let us hope at least that if we get a *Pound* coin it will be in silver and not base metal. A real silver *Pound* would make an excellent denomination for Commemorative Coins which have never looked their best in cupro-nickel even as proofs. The present gold *Sovereign* could then be more realistically tariffed as a *Five Pound Piece* or perhaps by then it will have to be a *Ten Pound Piece.*



Section drawn by the Deputy Borough Engineer, Mr. Rodmel Agar, showing the site of the excavation in relation to the coastline.

Bournemouth Two Thousand Years Ago
A Special Archaeological Report

The Autumn of 1969 was marked by the discovery of the second most important Archæological Site within the County Borough of Bournemouth. That an excavation was made possible in spite of the necessity of holding up the East Cliff Stabilisation Project and replacement of the carriageway of the East Overcliff Drive was due mainly to the keen interest of the then Deputy Borough Engineer, Mr. Rodmel Agar, a member of the Bournemouth Natural Science Society since 1958. That Mr. Agar's attention was drawn to the possible archæological significance of the site is due to the foresight and interest of the men who discovered the first fragments of pottery and sought his expert advice:

Mr. E. W. (Ted) Rawles, 12a Hillcrest Road, Corfe Mullen, Wimborne, Dorset.

Mr. A. Roper, 42 Dorchester Road, Maiden Newton, Dorchester, Dorset.

Mr. T. Roper, The Cross, Maiden Newton, Dorchester, Dorset.

Mr. J. Atkinson, 7 Hillview, Maiden Newton, Dorchester, Dorset.

Mr. T. Whelan, 17 Newton Road, Maiden Newton, Dorchester, Dorset.

During the morning of Tuesday, 14th October 1969, I was visited at the Russell-Cotes Art Gallery and Museum by the Deputy Borough Engineer, Mr. Rodmel Agar, C.ENG., M.I.C.E., M.I.MUN.E., A.M.I.STRUCT.E., A.M.T.P.I., who informed me that some pottery had been unearthed by the contractors working on the lowering of the level of the East Overcliff Drive. I immediately accompanied him to the site in his car and inspected some sherds, two fragments of bone and some coarse material of a ceramic nature which had been discovered by the workmen under Mr. E. W. Rawles of Tilbury Construction Ltd. I was also shown by the workmen two pots partially visible in the side of the trench. I proceeded to take a few photographs in 35mm colour transparencies as that was the kind of film in my camera at that time. I subsequently arranged for a member of my staff, Mr. G. L. Harrison, to take a record of the site in both ciné and still photographs using the museum cameras.

Mr. Agar very kindly volunteered to approach the owner of the property adjoining the site, Mr. Dilley of Dilley Developments Group, to see if he would permit any archæological excavations to encroach upon the land leased by him forming the grounds of the Riviera Flats. He spoke to me on the telephone during the afternoon and assured me that Mr. Dilley had no objection to the proposed excavation providing it was approved by the Meyrick Estate from whom he leased the land. Mr. Agar had also approached the Agent for the Meyrick Estate and made tentative arrangements for a meeting on the site to discuss the matter.

In view of the urgency, however, and particularly of the danger of the side of the trench slipping and damaging the two pots which were visible, I telephoned Hinton Admiral and spoke personally to Lt. Col. Sir George David Elliot Tapps Gervis Meyrick, Bart., who, in addition to being the ground landlord of the entire site including the road, is a member of the Libraries and Museums Sub-Committee of the Bournemouth County Borough Education Committee. Sir George, who had already been informed of the discovery by his Agent, very kindly gave

his full permission for an archæological Excavation to commence as soon as possible on the following morning, Wednesday, 15th October, 1969. He had already been assured through his Agent that Mr. Dilley had given his permission regarding the Riviera Grounds and he therefore stated that the excavation could begin immediately. Any finds would be his property as ground landlord irrespective of whether they were found under the East Overcliff Drive or under the grounds of the Riviera Flats. However, he was most concerned that the excavation should be scientifically conducted by a competent and fully experienced archæologist and that the finds should be expertly recorded and treated. He therefore agreed to the removal of all finds to the Russell-Cotes Museum and to their treatment and subsequent exhibition at the Bournemouth Museum of Archæology, 50 Braidley Road, Bournemouth, of which his son is also the ground landlord. Whilst Sir George wished to reserve for the present considerations of the placing of the finds permanently, he and I agreed that they should not be moved out of the Bournemouth area.

Sir George expressed a wish to visit the excavation site personally within the next few days and I promised to keep him fully informed of developments.

Regarding the choice of a competent archæologist to direct the excavations on the site, I suggested Mr. Michael Ridley, F.R.A.I., the Director of the South Wessex Archæological Association and Curator of the Bournemouth Museum of Archæology. Sir George approved the appointment of Mr. Ridley and requested me to convey his decision to Mr. Ridley that evening.

Accordingly I telephoned Mrs. Ridley and gave her a message for her husband who subsequently telephoned me back when he had finished an evening lecture he was giving. He agreed to direct the excavating and stated that he would commence the operation the following morning, Wednesday, 15th October 1969.

I also telephoned Mr. Agar during the evening and informed him of Sir George's decision. He agreed to visit the site next morning and to afford Mr. Ridley every possible facility. He also agreed to arrange with Mr. Ridley and Mr. Rawles for the contractors to remove the overburden and topsoil from an additional area as soon as possible on October 15th. Mr. Agar added that he and his staff had taken complete measurements of the discovery trench and that he was at that moment engaged on drawing a sectional plan. Mr. Agar also agreed that a brief report of the discovery should appear in the Proceedings of the Bournemouth Natural Science Society as he is a member and I am the Hon. Editor.

Early in the afternoon of Tuesday, 14th October, I had telephoned Mrs. Ridley to tell her the news of the discovery and she told Mr. Michael Ridley immediately upon his return from a morning meeting in Southampton. They visited the site together and in addition to the pot sherds which I had seen, Mr. Ridley had discovered a sherd of Roman Terra Sigillata or Samian Ware. He and I agreed that the other sherds which had been discovered by the workmen in the morning were of Iron Age date and two of these compared almost exactly with examples discovered by Mr. J. P. Bushe Fox during his excavations on Hengistbury Head in 1911 and 1912. *Graham Teasdill*

Riviera Iron Age Site on the East Cliff Bournemouth, Hampshire

Excavation 1969

SUMMARY REPORT by Michael Ridley, F.R.A.I., F.S.A.SCOT.

INTRODUCTION

This report describes the excavation of an Iron Age settlement on the East Cliff, Bournemouth. The site, situated immediately outside the Riviera Flats, has been called the 'Riviera' site.

It was felt because of the magnitude of the excavation and its importance to our knowledge of the Iron Age of the Bournemouth area, to publish a summary report without delay. The report will give a general summary of the excavation and outline the results. It is hoped that the reader will excuse the inadequacies and omissions which will inevitably occur in a report of this nature. A full report of the excavations will be published in the near future.

ACKNOWLEDGMENTS

My thanks are due to Lt. Col. Sir George D. E. T. G. Meyrick Bt., owner of the land, for permission to excavate; to Mr. Dilley of Dilley Developments, lessee of the grounds of the Riviera Flats, for permission to excavate part of the garden and drive of the Riviera Flats.

My thanks are also due to the Chairman, Alderman W. J. Whitelock and members of the Amenities Committee of Bournemouth Council for their interest and help in allowing the excavation to take place.

Tools and equipment were kindly lent by the Engineer's Dept. of Bournemouth Corporation and my thanks are also due to Mr. E. Whitaker, Borough Engineer, and to Mr. Rodmel Agar, Deputy Borough Engineer, who gave every assistance, and who also helped with the excavation in his spare time.

Tools and equipment were also provided by the South Wessex Archæological Association, the Russell-Cotes Museum, the Museum of Archæology and Tilbury Construction Ltd.

I am indebted to Mr. Graham Teasdill for his co-operation and help and for placing the facilities of the Russell-Cotes Museum at my disposal.

Over one hundred volunteers were associated with the excavation and it would be impossible to list them all. However, my special thanks are due to the members of the South Wessex Archæological Association for their unstinting efforts, not only on this but on the many other excavations I have directed in the Bournemouth area, to Tilbury Construction Ltd. for seconding two workmen and to the students of Portchester and Avonbourne Schools, and to Bournemouth School for Girls under the leadership of their teacher of History, Miss Cross. Volunteers also came from the Christchurch and Bournemouth Archæological classes of the Workers' Educational Association and from the Department of Archæology of Southampton University; my thanks are due to Prof. Barry Cunliffe for encouraging those who helped in this respect. My special thanks are due to Mr. David Dawson, Assistant

Curator of Archæology, Bristol City Museum, for his assistance as site supervisor over a long period of the excavation, and to Mrs. Jacqueline Ridley, without whose assistance with the organisation over the entire period this excavation could not have succeeded. Since the end of the excavation her attention has been directed to the conservation and welfare of the finds.

My appreciation is also due to Miss Christine Knight, who acted as photographer to the excavation, and to Mr. Clive Jude for his assistance with labour organisation over the entire period of the excavation. I should also like to record my thanks to Mr. C. O. Peabody for his very valuable help with site supervision. My thanks also go to Miss D. Browning, Miss E. M. Yonge, Mrs. S. Pryor, Mr. and Mrs. J. Hanger, Mr. D. Markell, Mr. F. Regan, Mrs. Kahane, Miss D. Gould, Mr. D. Viner, Miss J. Robson and all the 'regulars' too numerous to mention.

Last but not least, I would like to thank the Bournemouth Natural Science Society for publishing this report.

LOCATION OF SITE

The 'Riviera' site was situated on the East Overcliff Drive, Bournemouth, Hampshire. SZ 099 911.

The site was extensive and occupied an area approximately 12 metres wide and extended eastward approximately 275 meteres from the Carlton Hotel, immediately under the old tarmac road to the Riviera Flats, where it widened to approximately 35 metres to include a substantial part of the garden. The height of the cliffs between these points averages 38 metres.

The Riviera Flats are almost in the centre of the coastline of Bournemouth Bay, with Hengistbury Head and its Iron Age promontory fort to the east and Poole Bay and the Isle of Purbeck to the west.

DISCOVERY

We owe the discovery of the site principally to the diligence of two workmen engaged upon the construction of a stone retaining wall for the garden of the Riviera flats during the reconstruction of the East Overcliff Drive as part of the East Cliff Stabilisation Scheme.

Part two of the Scheme involved the removal of the old East Cliff tarmac road and a large amount of sand, both from under the road and from the cliff edge, and the subsequent relaying of the road on a slightly different course, closer to the buildings and on a different gradient.

On the morning of the 14th October 1969 two workmen, digging the foundation trench for a retaining wall outside the garden of the Riviera flats, cut through what appeared to be a pit containing a quantity of black pottery. This 'pit' later turned out to be part of a ditch which ran north-east across the site. Later that day Mr. Rodmel Agar, Deputy Borough Engineer, County Borough of Bournemouth, informed Mr. Graham Teasdill, Curator of the Russell-Cotes Museum, of the discovery. The writer was called in that afternoon in order to assess the importance of the discovery and to decide what course of action should be taken. It was decided that an emergency excavation be undertaken

without delay. After permission had been obtained from Mr. Dilley of Dilley Developments, lessee of the grounds of the Riviera Flats, and the excavation authorised by Sir George Meyrick, the owner of the land, the writer made the necessary arrangements for excavation to begin the following morning, Wednesday, 15th October.

The workmens' trench ran east/west immediately in front of the Riviera Flats, and had cut deep into the gravel with the sand overburden rising each side of the trench to a height of 1.25 metres. The foundation trench had cut through several features containing dark soil and pottery which had shown up in section cut into the natural gravel. In one of these features part of a bead rim bowl and a pedestal base were clearly visible. There was a danger of the overburden at the side of the trench collapsing. In view of this a section was drawn and photographed and arrangements were made to cut back the side of the trench mechanically.

A preliminary survey of the road works had shown that there were additional features, ditches, etc., showing in section in the line of the road which extended westwards towards the Carlton Hotel. There were several problems to be solved. The site was extensive, time was short and so were finances. Labour was perhaps most important and the most difficult to arrange. To raise labour for an excavation of this size is most difficult, especially at this time of year. The Press were informed of the discovery and an appeal made for volunteers. A number of avenues were explored to obtain help. We were, in fact, fortunate that volunteers came forward and the excavation was able to proceed. Volunteers came from the South Wessex Archæological Association, local schools, W.E.A., Southampton University and members of the public. Tilbury Construction Ltd. very kindly seconded a workman and towards the end of the excavation increased this to two men.

Tools and equipment were provided by the Engineer's Department of Bournemouth Corporation, Tilbury Construction Ltd., the South Wessex Archæological Association and the Russell-Cotes Museum.

An application was made for a grant to the Ministry of Works which unfortunately had to be refused due to lack of funds.

THE METHOD OF EXCAVATION

The object of the excavation was to recover as much as possible of the ground plan of the site, its function, its chronology and its relation to other Iron Age sites in the area.

Examination of the section of the workmen's trench showed that since the occupation of the site a large build-up of wind blown sand had occurred, covering and preserving the features. In some places the depth of the sand overburden was as much as 1.50 metres thick. The tarmac road had been built on top of this sand. As time was limited it was decided to remove the greater part of the sand overburden mechanically and then to remove the final covering by trowels.

The site was surveyed and divided into two trenches. Trench I, a rectangular area immediately in front of the Riviera Flats, and Trench II, the road works and cliff edge extending westwards toward the Carlton Hotel.

Trench I, covering an area of approximately 336 square metres, was divided into four areas. Area I, the original foundation trench for the garden wall of the Riviera Flats, as excavated by the workmen. Area II, the area of the Riviera gardens and driveway, removed for excavation. Area III, the site of the future road, and Area IV, the cliff edge. A metre grid was laid over the entire site.

Excavation of Area II of Trench I revealed an unexpected feature, a slip trench of the Second world War, complete with sandbags. Fortunately this had not seriously damaged any of the features beneath it.

The removal of the sand overburden was carried out with great skill by the driver of the JCB who himself was very interested in the excavation and gave up a lot of his spare time in order to help. His skill and knowledge of the digger showed that if suitable skilled personnel were available, a number of large emergency excavations could usefully employ mechanical means, in parts, without danger or loss of evidence.

The blown sand proved negative, no finds or features being present. Beneath this was a thin layer of mottled sand which gradually merged with a brown occupational midden layer. The mottled layer seemed to be formed by the mixing of the wind-blown sand and the brown occupational soil, a transitional period, perhaps indicating a minor change in climatic conditions or heralding the approach of the crumbling cliff edge, the layer of blown sand being carried by the wind from the beach. The mottled layer and the surface of the brown occupational layer produced a number of stake holes which were drawn, sectioned and mapped. The brown occupational layer was then carefully taken down to reveal a number of features cut into the gravel. In places there was a thin additional layer of silt which covered the gravel and through which features were cut. Trench II had already been excavated mechanically down to the gravel by the construction company, ready for the laying of drainage and road. However, the cliff edge had not been lowered and provided an excellent continual section from the Riviera Flats 100 metres towards the Carlton Hotel. This section was drawn and measured over its entire length. A separate section was drawn on the landward side, extending towards East Cliff Court. Both sections showed a number of ditches and other features. The cliff edge was later excavated mechanically by the construction company, careful watch being made, in order to trace features which had shown up in section.

Numerous photographs were taken both at ground level and from a hydraulic lift which allowed virtually the whole site to be photographed in one panorama.

One of the difficulties was the lack of time. Originally the time limit was the end of October but this was extended twice until the excavation finally finished in the first week of December. At first the weather was fine and work proceeded with little hindrance. However, after the first two weeks the weather changed, becoming cold, wet and windy, often causing the dig to be abandoned, sometimes for several days at a time though every opportunity was taken to continue, sometimes under appalling conditions. Many times the site was flooded, layer and feature labels were washed away and sand blown all over the site. Cleaning up

This illustration should be viewed horizontally

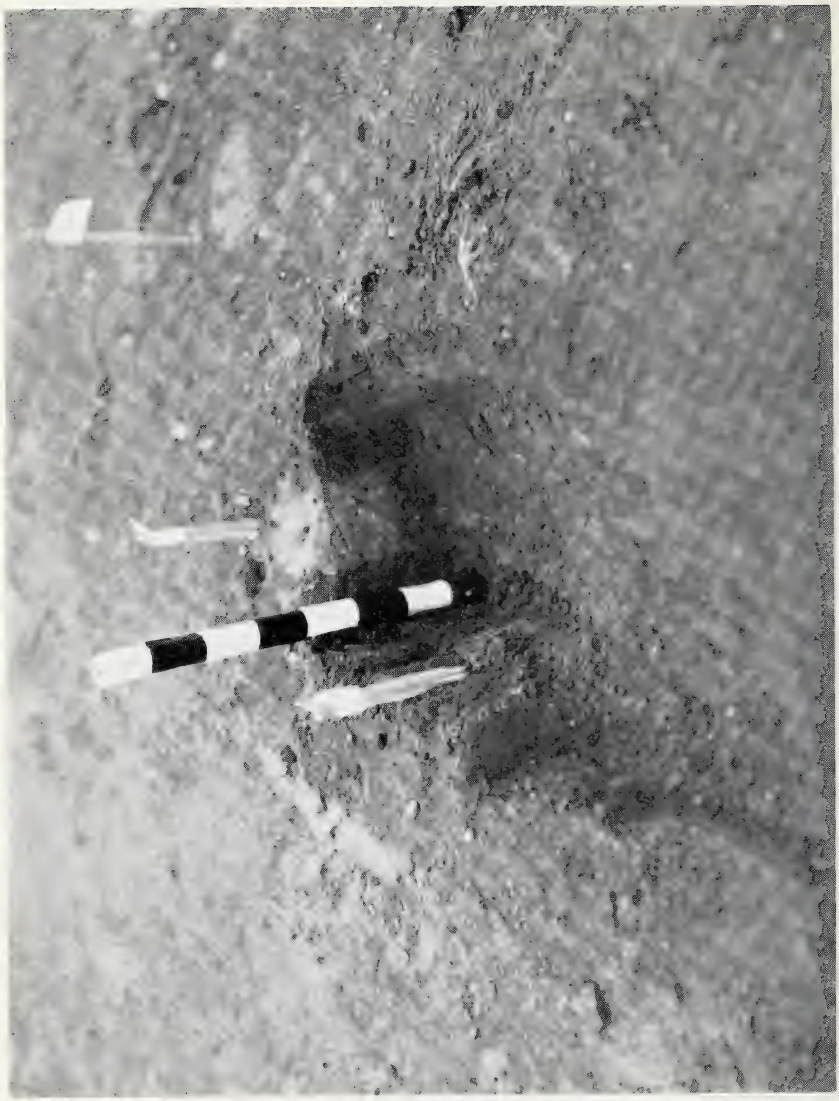
Ditch, exposed by workmen who accidentally cut through the feature when digging a foundation trench for a wall. Finding pottery, they burrowed sideways to reveal a pedestal base and part of a bead rim bowl. Photographs taken on the day of discovery before excavation began. Scale in inches.

This illustration should be viewed horizontally

The garden and drive (Trench 1, Area II) being mechanically excavated down to the mottled layer, Layer 2.

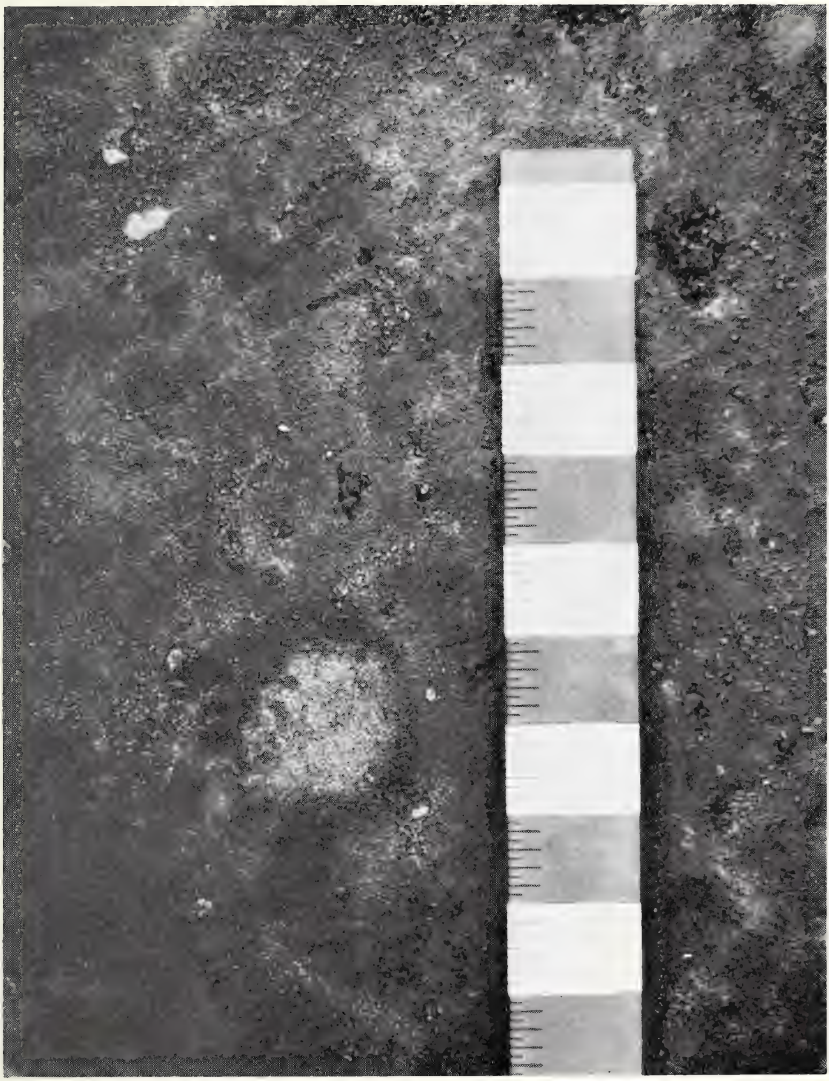
This illustration should be viewed horizontally

Trench I. Scraping the top of the mottled layer clean after the mechanical excavator had removed the blown sand overburden. The excavation then proceeded by trowelling. The original workmen's trench can be seen dividing Area II from Area III.

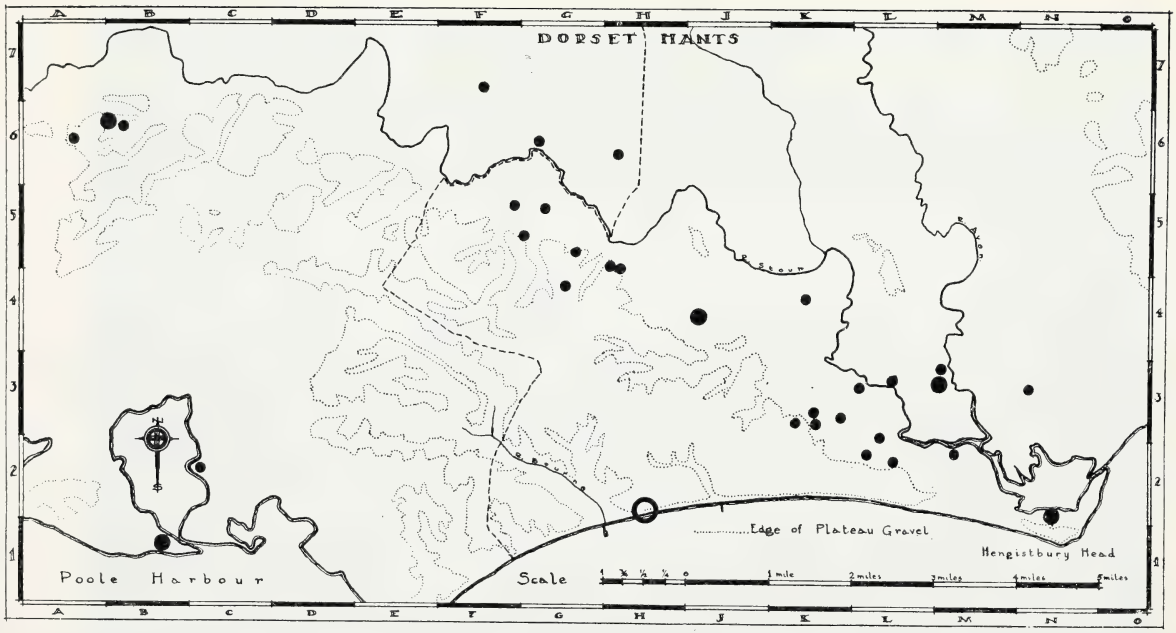


This illustration should be viewed horizontally

Section through one of the stake holes. Scale in inches.



Stake Hole in Trench I, Area III.



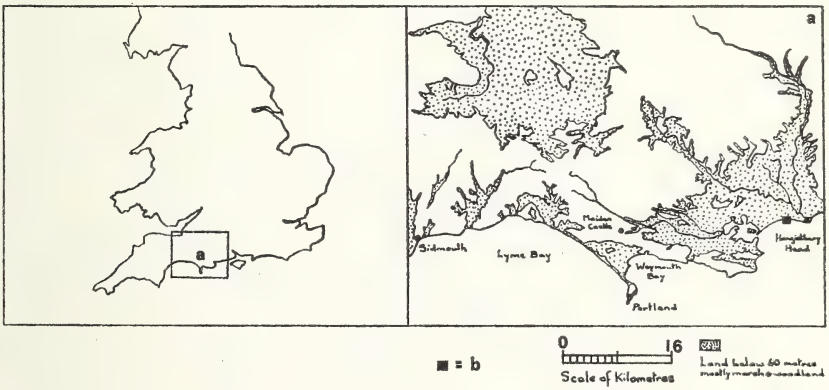
Distribution map of Iron Age sites in the Bournemouth Area after J. B. Calkin

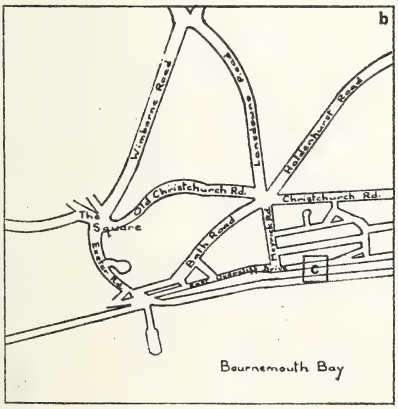
● Major settlements

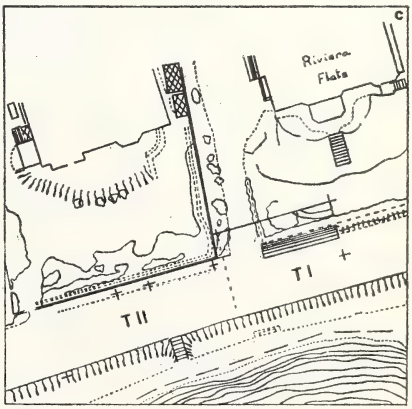
• Other sites

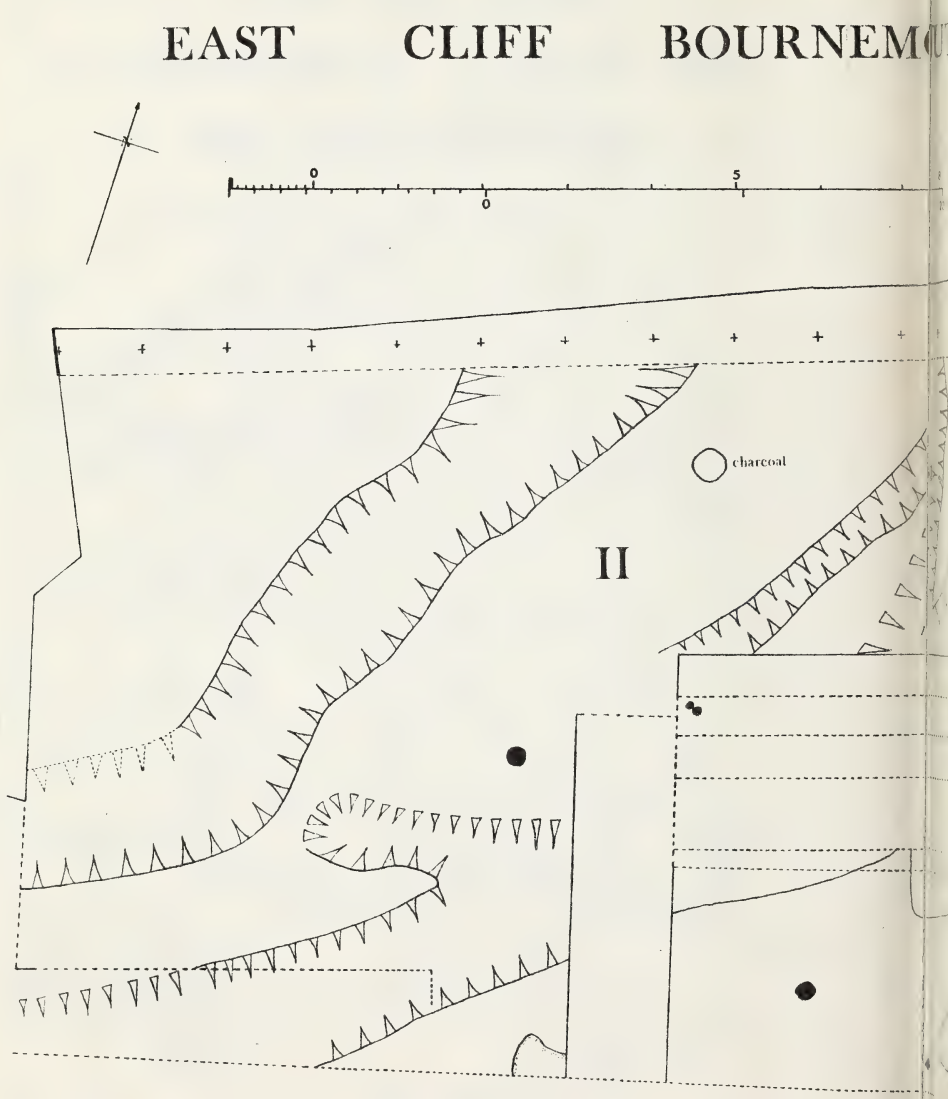
○ East Cliff site

IRON AGE SITE
EAST CLIFF BOURNEMOUTH
EXCAVATIONS 1969







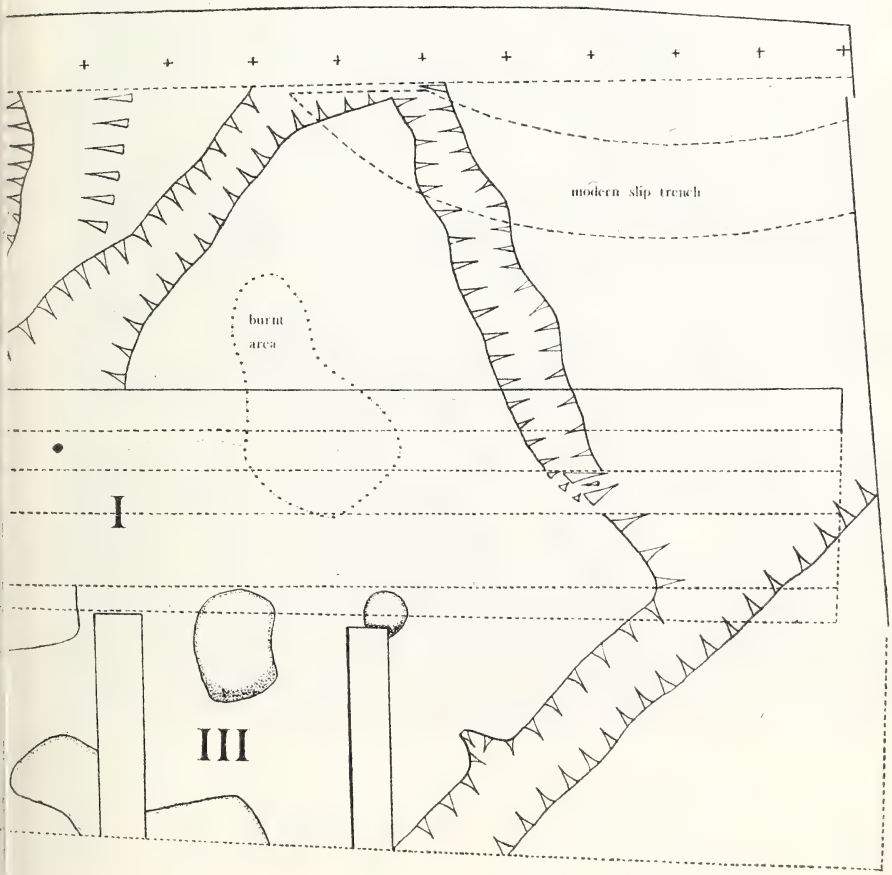


Plan of Trench I, Areas I, II a

...UTH TRENCH I 1969

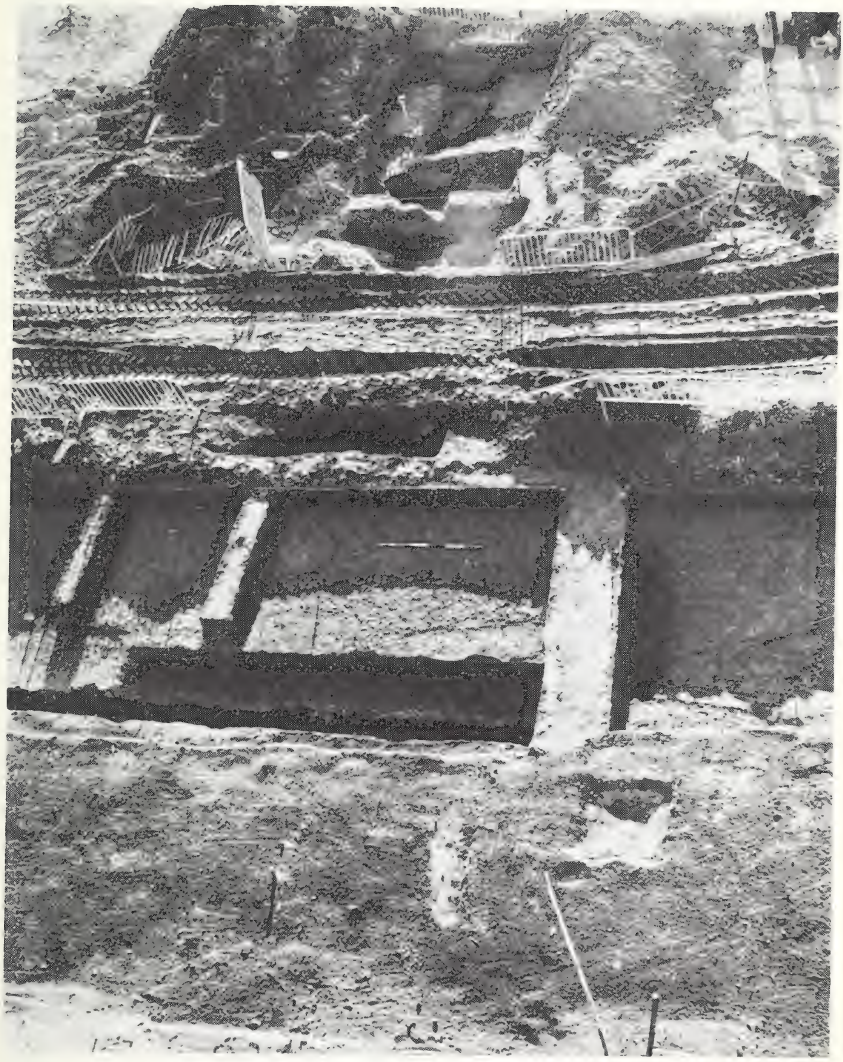
SITE I,II,III

1 METRES
20 FEET

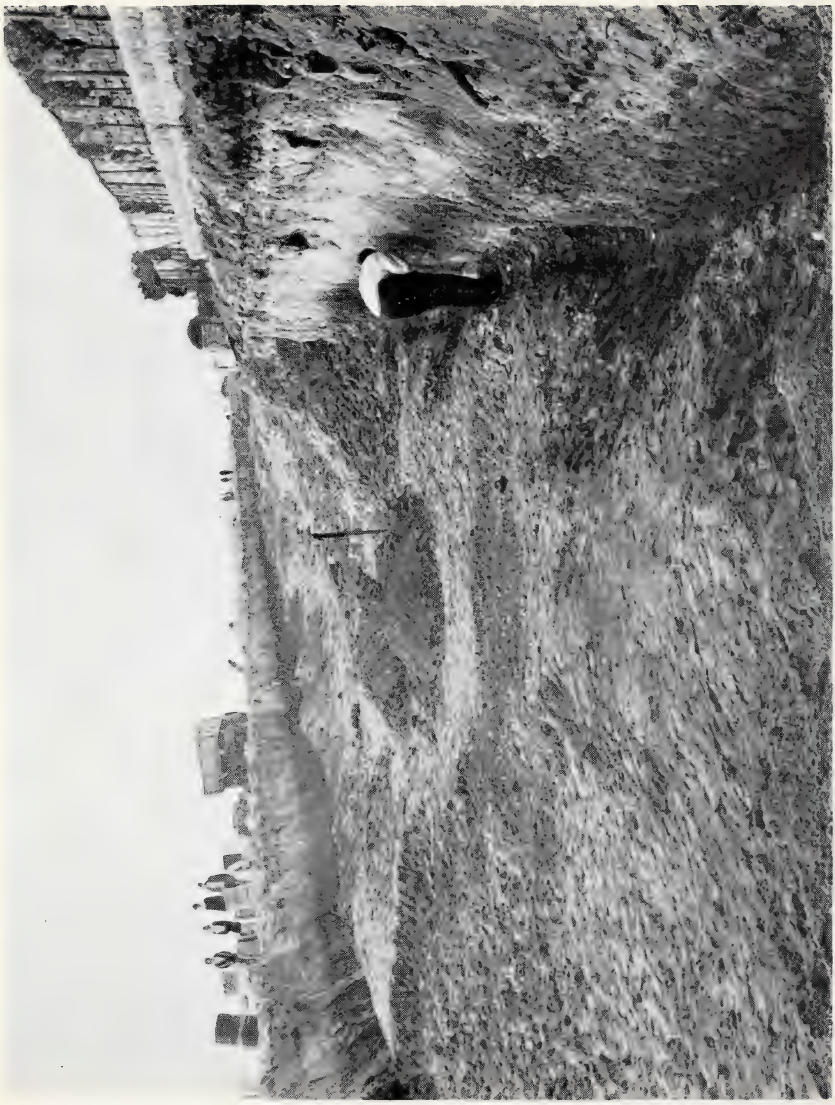


II Stake holes are not shown.

This map will be reprinted in the full report of the excavations complete with the location of the Stake Holes.



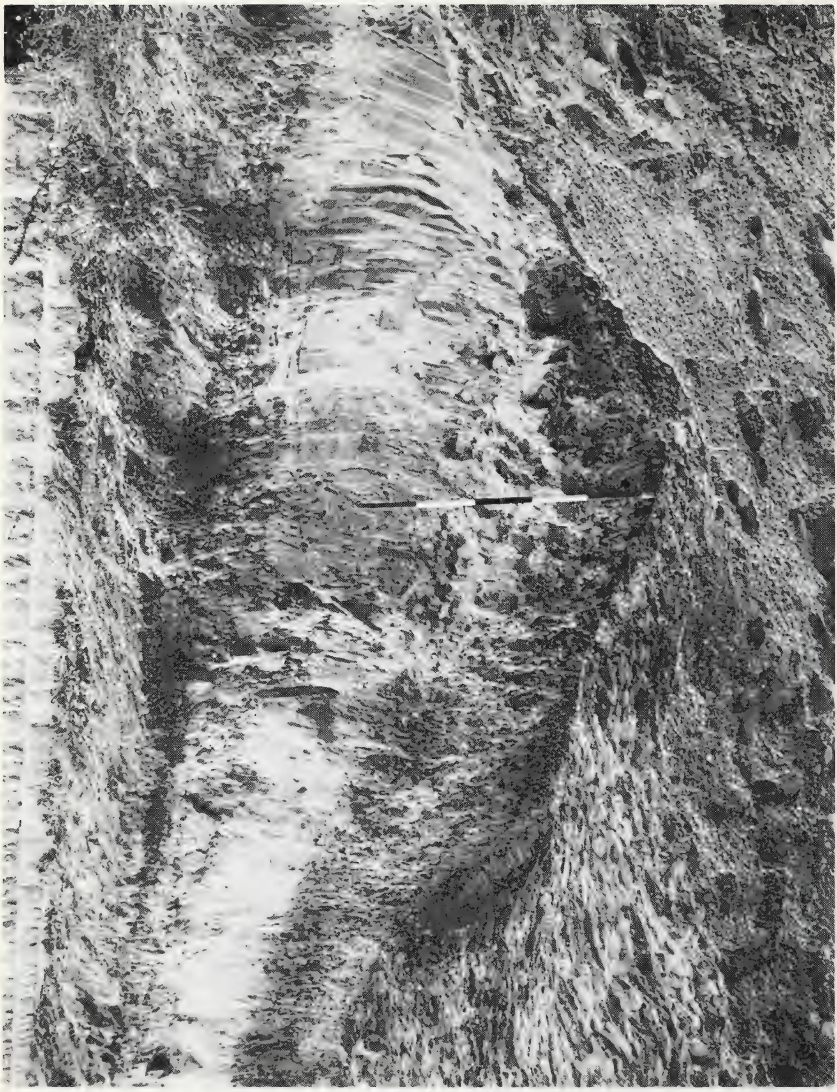
General view of Trench I, looking towards the cliff edge. The large ditch in Area IV (roadway and cliff edge) can be seen clearly. Several features can be seen in outline in Area III.



This illustration should be viewed horizontally

View of Trench II, looking westwards towards the Carlton Hotel. The continuous section on the seaward side (left) shows the brown occupational layer. A ditch (one of a pair) can be seen in the landward section.

Trench II, looking towards the Carlton Hotel. Double Ditch in section.



This illustration should be viewed horizontally

The large flat bottomed ditch to the eastern end of Trench II, photographed prior to the fall of soil after a deluge.

This illustration should be viewed horizontally

The large flat bottomed ditch after the fall of soil.

This illustration should be viewed horizontally

Trench I, Area III, west end, excavating and marking stake holes with pegs.

operations took many hours. During the last stages of excavation it was so cold that the filling of ditches and pits froze and oil drums with fires had to be placed over them in order to thaw the soil before excavation could begin.

The excavation had to be done in parts. Only Areas I, II and III of Trench I could be sealed off entirely from the construction work. Area IV, Trench I, could only be excavated in stages, first on one side, then the other, to allow the passage of construction lorries.

GENERAL SUMMARY

After preliminary investigations of Trench I, Area I, the area was left until a later stage of the excavations so that it might be excavated horizontally with Areas II, III and IV after layers 1 and 2 had been removed. Trench I, Areas II and III, were excavated horizontally.

The features and finds occurred in layer 2, brown occupational soil mixed with yellow blown sand. After scraping the top of the layer clean, numerous stake holes began to appear all over Areas II and III of Trench I. These stake holes also occurred in the top of layer 3, brown occupational soil, and some cut both layers.

The appearance of the stake holes was uniform and showed up as light circles of sand on a brown surround. The diameter averaged about 5cms. The depth varied; sections showed them straight but the angles varied.

Beneath these stake holes, pits, ditches and post holes were cut into the natural gravel, sometimes through a thin layer of silt. A brown occupation soil covered the surface of the natural gravel and silt and capped the filling of the features. Pottery filled most of the ditches. Some animal bones were also found in the ditch fillings.

A lorry which happened to cross part of Area IV, Trench I, after a particularly heavy rain storm, led to the discovery of a large ditch. The rear wheels sunk into the mud filling, making it impossible to move. Its efforts to release itself only resulted in the wheels digging deeper into the ditch. Eventually it was pulled clear by a JCB. Work then began in earnest in an effort to excavate that part of the ditch which was immediately in the way of the lorry route. This was accomplished in one day. The construction company kindly diverted their vehicles during this period. The continuation of the ditch was excavated at a slower pace over the next weeks. This ditch produced a substantial quantity of ironstone and burnt and calcined flint, together with quantities of pottery and animal bones. The ironstone and flint were all found in on small area of the ditch. The flint weighed 33kg. and the ironstone 85kg. It is probable that the ironstone came from Hengistbury Head. Some raw clay was also found in the ditches.

Work continued on Trench II simultaneous to work on Trench I. A number of ditches were noted in section on the seaward side of Trench II. The occupational brown soil, noted in Trench I, was found to continue westwards over 100 metres towards the Carlton Hotel. It was evident from examination of the section of the cliff face, however, that the brown occupational layer continued further westwards towards

the Carlton Hotel, but could not be drawn due to the gradient of the road excavation which gradually rose from this point, blown sand only visible in section.

On the landward side of Trench II, an extremely wide flat bottomed ditch was found on the eastern end of Trench II, with a smaller ditch to the west. At first they gave the appearance of a pair of boundary ditches. Drainage ditches were noted in the western part of Trench II.

After several days of heavy rain a fall occurred on the section of the large double ditch. After clearing the soil and scraping the section it became evident that the ditch was not as large as first supposed, but what had been first observed was a section through a sharp corner of the ditch.

The site appears to have had three phases of occupation shown by two stages of ditch digging. The final phase is illustrated by the stake holes, suggesting light structures of poles and brushwood.

THE FINDS

Isolated, weathered sherds of Iron Age C pottery, including bead rims and Romano-British ware, were found in layer 2, Trench I.

Large quantities of pottery were recovered from the ditches and pits. The pottery included both Iron Age B and Iron Age C. Bead rims, counter-sunk handles, pedestal bases, bead rim jars, pear shaped bowls and carinated bowls on pedestal bases were all present. Some Haematite ware was present and two sherds of Terra Sigillata were also recovered.

A part of a Kimmeridge shale armlet was recovered from a ditch. A highly corroded fragment of a bronze fibula was recovered from layer 3, Trench I. Soil conditions generally did not permit the preservation of metal objects and no coins were found.

GENERAL SUMMARY—STATEMENT

Although the excavations were on a very large scale, it was an emergency operation and only a small part of a large site was examined. Our knowledge must therefore be limited. However, the very nature of the site, its size and the finds, give some indication of its importance.

A full description of the finds and features and discussion will be given in the full report to be published next year. At this stage it will be sufficient to give the above general summary and outline of the site and finds. A review of our existing knowledge of the Iron Age of Bournemouth and the importance of the site, if any, on the overall picture, will be made in the full report.

Report of Council for the year ending 30th September, 1970

The list of meetings of the Society for the year shows the intellectual fare served up to us, but by itself cannot convey the enjoyment and pleasure of members who have partaken of it. Our Society has so many people working for it in different ways that at times like this it seems invidious to pick out any person or persons for special mention. But our programme is the biggest single item in the Societies activities, and to all the chairmen of sections and their own chairman, Mrs. Hunt, in

particular, the Society owes a special debt of gratitude. One is sometimes lost in amazement at the brand new ideas this Committee generates; Phœnix-like each new programme rises recreated from the ashes of the old. We should include among the chairmen of sections our Curator, Mrs. N. Sephton, M.B., CH.B., for the displays she arranges appropriate to each lecture.

Our gratitude is due to Mr. Wood who, many may not be aware, has now completed eleven years of admirable service to the Society as Hon. Treasurer. In recognition of this service he has been made an Hon. Member of the Society.

Special mention must also be made to Mr. Fildes, our Hon. Secretary, who has completed four years in one of the most exacting offices in our Society. His untiring efforts on our behalf have made it almost a full time job and it may be in some measure due to this that the state of his health has meant enforced retirement from the Secretaryship. We are deeply indebted to him and hope that in due course he will be restored to full health. We are fortunate that Mr. Lee has agreed to succeed him.

This year Council feel that there should be a special reference to the many donors of gifts to the Society. One cannot enumerate all these as they are many and some are anonymous and range from £5 given by a well-wisher (not a member of the Society) through slides, carpets, Museum exhibits, books for the Library, etc., to the member who arranges for our duplicating to be done free of charge and another member who is personally binding all our unbound copies of "Nature" —this complete set being one of our most valuable possessions. In gross these gifts represent a very substantial help to the Society and Council wishes to acknowledge the benefactions and thank most sincerely all those who have made and are making them.

Reference should also be made to the slightly amusing coincidence that whereas last year we elected as President (for a second term) one of our oldest members, Mr. Ernest Chambers, F.L.S., this year we have elected one of our youngest members, Mr. Graham Teasdill, F.M.A., F.R.S.A., F.R.N.S., F.Z.S., Curator of the Russell-Cotes Art Gallery and Museum.

Since becoming a member Mr. Teasdill has thrown himself wholeheartedly into the service of this Society—his help to us in valuing our Museum exhibits for insurance purposes two years ago is typical of his enthusiasm, and last year he volunteered for the position of Honorary Editor which this year he continues to discharge despite the considerable extra drain upon his time as President.

We say an official goodbye to one of our stalwarts—Mr. H. S. Holbrook, B.SC., C.ENG., F.I.E.E., who for many years has acted as the Society's Honorary Librarian—a dedicated worker if ever there was one. Council appreciates his long and excellent service, and welcomes Miss E. Horne, M.A., as Librarian in his stead. It also welcomes Miss E. Crichton Todd as Assistant Librarian—a newcomer to the title perhaps, but no newcomer to the job. To Mr. Holbrook, therefore, good health in which to enjoy his increased leisure and to Miss Horne and Miss Todd pleasure and satisfaction in the service they will be rendering.

In connection with the Library we are sorry to lose the services of Mr. M. H. Cocke, who has for some years been chairman of the Library Committee, but he too feels it time he shed himself of some of his responsibilities, and in addition to the above chairmanship resigns from Council and F. & G.P. To him also Council gives its grateful thanks and best wishes.

We are also very sorry to record the resignation of Mrs. Bircumshaw as Chairman of the Physics and Chemistry Section. Mrs. Bircumshaw has held this office for some five years and your Council wish to gratefully acknowledge the capable way in which she has led this Section. We are pleased to note that Mrs. Bircumshaw will still be taking a very active part in this Section's activities as she is willing to remain as the Deputy Chairman.

Another resignation is that of one of our Hon. Auditors, Mr. Lawes, who has asked to be relieved of these duties after a period of eight years. We express our thanks to Mr. Lawes for the conscientious way he has carried out these duties, so important to the Society but one that usually receives little recognition.

Yet another matter of personnel which we are happy to say does not involve any resignation is the proposed change-over between Brigadier A. B. D. Edwards, C.B.E., M.C., Chairman of Council and Mr. W. Laidlaw as Deputy Chairman.

It may, perhaps, now be revealed that when Mr. Moss had to resign as Chairman at short notice F. & G.P. devoted the best part of an afternoon to selecting a new Chairman to recommend to Council, and at the end Brigadier Edwards (who at first indicated he was not prepared to stand) finally succumbed to the unanimous wish of the Committee and accepted nomination. He has now acted as Chairman for $2\frac{1}{2}$ years and reference was made last year to the excellent work done under his chairmanship, not the least being his undoubted flair for filling vacancies in the Society's officials and in obtaining understudies for those now in office. It is nice to know that although the main burden of the Chairmanship will now fall on Mr. Laidlaw, whom we welcome in this elevation, he will have behind him a very competent Deputy.

Room for a word of praise might be found here for those of our members who conduct original research. The Society may not hear of these results except as a casual reference in a lecture, as standing by themselves the results may seem trivial, but recorded observed facts or the outcome of a carefully controlled experiment are the stuff of which science is made, as each little piece of knowledge may form part of a jigsaw which when assembled will present a recognisable picture.

During the year the Society received the deferred legacy from the estate of Miss Sheffield, who during her lifetime was particularly active in securing new members, and she would surely be pleased to know that her legacy now brings £45 p.a. into the Society's current account, and will continue to do so for the next 24 years, after which we shall still have the £500 for reinvestment.

Mention may be made here for the first time to an unofficial ad hoc sub-committee formed by F. & G.P. and consisting of those who had

some experience of investment policy to advise on the general question of the Society's investments. At the moment this ad hoc sub-committee consists of Mr. Boite, Mr. Lawes (one of our auditors), the Treasurer and the Secretary. Their findings are passed on to F. & G.P. who consider them and, if they think fit, pass them on to Council. It is nice to record that the findings of this ad hoc sub-committee have always been unanimous and have subsequently been approved by both F. & G.P. and Council.

If there is one golden rule of investment it is that all one's eggs should not be in one basket and not even too many eggs in similar baskets. The Society's invested funds are now in a very healthy state, being invested approximately equally in three groups (1) British Government stocks, mostly either medium or long dated, the only "bad" stock being the holding of 4% Consols which is undated and whose price is accordingly entirely at the mercy of interest rates. This stock is probably the legacy of days when interest rates were less than half what they are today when this stock gave a return rather higher than others, (2) Corporation Mortgages—it is by these that local authorities raise money on a short term basis. They are rarely for more than 7 years and usually for about half this term. Although not readily negotiable they form a useful block of shares which come up periodically for renewal or other form of investment, and (3) Our holding of Hill Samuel Income Trust Units which represents investment in ordinary shares in approximately 100 well-known British companies giving us a "spread" which before the advent of unit trusts was available only to the large investor. This is our hedge against inflation.

All our holdings have to a greater or lesser degree suffered in the fall in Stock Exchange prices over the past year or two, and while naturally every investor prefers to see his stock go up rather than down the losses are only paper losses and the wise investor is more concerned with the basic solidity of his investment than in temporary price fluctuations.

This year for the first time our list of investments in the accounts shows the 50/50 division into Narrow and Wider range stocks permitted under the Trustee Investments Act 1962. There is of course no objection to holding narrow range stock in the list of wider range, but the original division between the two shows the scope of investment available to the Society as funds become available for reinvestment by redemption or otherwise. New moneys invested for the first time (such as Miss Sheffield's legacy) have to be split 50/50 between the two classes of Narrow and Wider Range, even though (as in the case in point) it may be decided to invest entirely in Narrow range stock. Only thus can the provisions of the Act be complied with and the investment possibilities for the future clearly indicated.

Our biggest asset is, of course, this property and while the expense of maintaining the building is a constant worry we can perhaps draw some comfort from the fact that the site value must be increasing considerably and steadily, even though this may also be only a "paper" increase because other sites are experiencing the same inflationary increase. Nevertheless our position on the main road is a favourable one.

The state of the membership of the Society whilst not greatly increasing in numbers at least shows a small increase. The number of members at the beginning of the year was 413 and new members showed a very satisfactory increase of 74. However, deaths, resignations and unpaid subscriptions reduced this number by 60, so that the net increase was only 14 and our membership at the end of the year 427.

One must make a brief reference to the late Mr. A. J. Butcher, F.R.I.B.A., one of our past Presidents. It must be recorded that the Society owes him a great debt for his services over the years as Hon. Architect. He was a man of great charm and friendliness and his death is mourned by his many friends in the Society.

In a report of this nature it is all too easy to miss out some matters and persons that should have been mentioned and I ask you to forgive any such omissions.

In conclusion your Council feel that the Society can look back over the activities for the past year with every satisfaction, but at the same time we can all look forward with every confidence to the coming year, which we have no doubt will be no less successful than the past one.

Archaeology and History

The Section was honoured this year by the newly-elected President, Mr. E. Chambers, F.L.S. who, on the assumption of this high office for the second time in the annals of the Society, selected an archæological subject for his Presidential Address. It was entitled "The Legacy of Egypt" a full account of which has appeared in the Proceedings Vol. LIX, pages 16-23.

Following this auspicious opening, eleven further lectures were delivered, three by Guest Lecturers and the rest by our own members, including two talks on Members' Days. Particulars of these items appear on page 120.

Three Field Meetings were also arranged, the first to Silchester, the second in conjunction with Mammalia Section to Longleat and the third to Uffington Castle and Wayland's Smithy.

The scope of the lectures has been wide and varied and we have travelled from the "quaint old Cornish towns" to Malta with its enigmatic megalithic monuments, to Turkey, land of Mosques and Antiquity, mysterious India and Kashmir, Egypt, to see the secret chambers of the Cheops Pyramid not usually open to visitors, and to Tasmania where the skeletal remains of early man were discovered.

On Members' Days the writer gave a talk on the Palæolithic artifacts in the Museum during which the very fine Abbeyvillian and Acheulian hand-axes were examined and Mr. Robinson introduced us to the origins and meaning of Heraldry.

Guest Lecturers were Mrs. Douglas Taylor, who gave a most interesting talk on Dorset's Old Manor Houses, and Mr. L. R. Townson of the National Trust, who brought home to his audience the necessity of vigilance for the preservation of our coastline and other aspects of our national inheritance. Major G. Watson gave a scholarly and thought-provoking lecture on the "Origin of Man" and his anatomical develop-

ment and produced, among others, the slides of the actual discovery of skeletal remains of fossil man in the Olduvai Gorge.

We would wish to record our grateful thanks to our Guest Lecturers who came from some distance to give us the benefit of their knowledge and erudition with so much grace, and to our member lecturers of whom we have reason to be proud not only for the standard that they have achieved in their own subjects, but their ever-ready willingness to give so much of their time to the interests and pleasure of our Society.

The Field Meeting to Silchester or Calleva Atrebatum, "The Woodland Town" of the Atrebates was preceded by a visit to Reading Museum where the artifacts obtained from the site are housed. A talk was given by the Director of the Museum on "Silchester in Roman times" with a description of its main buildings. Afterwards the site itself was visited but, owing to the fact that it comprises some of the most valuable arable land in the country and the cost of conservation is so high, all the excavations have been filled in and only the outer defences and the original Roman Walls remain. We were, however, allowed to walk through the "Drove", the remains of the Roman road which runs across the city and to discern the outlines of the streets from the cropmarks which were just appearing.

Longleat House proved to be a very interesting and popular tour both to members of this Section and Mammalia. The House itself contained much valuable china and silver and a library said to include many rare and first editions. All members of the party visited the Wild Life Park afterwards, under the guidance of Miss Bennetts who gave us a "close-up" account of the animals and their habits. This joint Meeting arranged by both Sections will be followed by one of a similar nature next year.

The visit to Uffington Castle, the White Horse and Wayland's Smithy rounded off the outdoor activities of the year in an exceedingly interesting and enjoyable manner. Most of the party were able to take the short walk along the Berkshire Ridgeway, said to be part of "the oldest road in the world" to Wayland's Smithy, a neolithic long barrow excavated by Professors Atkinson and Piggott in 1962 and who, under the direction of the Ministry of Works, restored it to its original state. The Barrow is 180 feet long and has an imposing facade of 6 large sarsens 10 feet high with panels of drystone walling. An earlier and smaller barrow was discovered at the centre which proved to be of exceptional interest to archæologists as illustrative of the method of burial, when the primary inhumation was on a wooden platform with others probably of the local chieftain and his family until finally, a mould of chalk rubbish was piled over the burial chamber. Following this the party went on to enjoy the superb beauty of White Horse Hill and the wonderful views from this point 856 feet above sea level. The White Horse itself is 360 feet long and 130 feet high at its widest point and dates from about 50 B.C. It is thought to be the tribal emblem of the Atrebates who were responsible for the building and defence of Uffington Castle, the Hillfort close by. A visit to the nearby "Blowing Stone" on which King Alfred was said to have summoned his troops to the battle of Ashdown concluded this very memorable occasion. *C. Simpson, Chairman*

Astronomy

The work carried out by amateurs lies in the main with direct observation through telescopes of the Sun, the Moon, the Planets, Comets and variable stars with instruments which range from 4-inch refractors and 6-inch reflectors to 18-inch reflectors. Some of this research can even be undertaken by observation with the naked eye, such as: Variable stars and Meteors. In some cases there is so much work being carried out on one particular subject that an observer may wish to concentrate on just one special aspect. A case in point is the Moon where studies are being made of Lunar Domes, overlapping craters, outbursts of localised activity and many other features; to some extent this is also with some of the planets and the study of meteors. When one starts specialising like this in certain fields, then one requires more experience and in some cases the apparatus becomes more refined.

In Radio Astronomy too the amateur today plays a big part; at the moment a joint programme is being conducted between Britain and the United States in which studies of the Sun, the planet Jupiter, Radio stars and other fields are being undertaken.

In England the main body responsible for the organisation of amateur research work is the British Astronomical Association (B.A.A.), although its members are to be found all over the world. Within the Association there are Sections, each with its own particular task, e.g. the Solar, Lunar, Mercury and Venus, and Meteor Sections, and so on. Any serious member on joining the B.A.A. can follow the line of study that he or she has chosen by joining one or more of the sections. The results of one's work are sent from time to time to the Director of the Section, whose job it is to collect in all the work from the Section's members and to compile reports on this material which are in due course published.

Other countries too have their own Societies which carry out similar work to that of the B.A.A. In the United States this job is done by the Association of Lunar and Planetary Observers (A.L.P.O.) and in some cases both the B.A.A. and the A.L.P.O. are working on joint programmes.

In this technological age of space probes, some of the work that in the past was carried out by the amateur now has been made obsolete; however, with the closer views of our neighbours, especially the Moon, that are obtained with these probes, new little problems arise. Thus today the amateur astronomer can, and is, still playing a significant part in astronomy.

C. M. Pither, Chairman

Botany

The full list of lectures and field meetings organised by the section will be found in another part of the Proceedings, but I am selecting certain items as worthy of more detailed description.

The Fungus Foray has been an outstanding event for many years with Mr. and Mrs. V. T. Pickering as leaders. Mr. Pickering has made an intensive study of the Fungi since he first joined the Society; he is

now a member of the British Mycological Society and a well-known leader of similar expeditions for various local societies.

He has made numerous discoveries of species of Fungi previously unknown in the New Forest area which have been recorded in earlier editions of the *Proceedings*.

In October 1969 the party was conveyed by coach and by special permission travelled along the Ornamental Drive, stopping at intervals to collect and examine the various species found among coniferous trees. *Sparassis crispa* is an edible fungus of unusual appearance suggesting a large sponge or cauliflower head. It is usually placed in the *Clavaria* family whose other species are very small and usually found among grasses. Other edible fungi seen were *Pleurotus ostreatus,* the oyster fungus; *Fistulina hepatica,* the beefsteak fungus and *Boletus edulis,* the 'bath bun' fungus.

Fungi responsible for serious diseases of the Forest trees, both coniferous and broad-leaved, were pointed out. In all, 94 species were identified, which was a most encouraging result after a very dry spell of weather which does not encourage the growth of fungi.

On June 6th this year many members visited the Efford Experimental Horticulture Station where experiments are being performed to lengthen the season of production of flowers, fruit and vegetables.

We have all become familiar with the appearance in florists' shops of pots of dwarf chrysanthemums throughout the year and while we may not all welcome them we must have wondered how it was done. In some of the vast glass-houses at Efford we found the answer—controlled lighting. Powerful electric lighting at night delays bud formation at first, then when the desired height is reached the length of the day is shortened by covering the beds with black polythene to initiate flower-buds. Carnations flower faster as day length increases thus in the houses devoted to their culture the day is artificially increased when the young shoots have developed sufficiently and after about four weeks the flowers are ready for gathering. Throughout the $2\frac{3}{4}$ acres of glass there are automatic methods of irrigation, feeding and ventilation and the correct degree of humidity is ensured by mist propagation. Ideal physical conditions and nutrition produce a continuous crop of uniform quality through a greatly extended season, a most important adjunct to modern requirements. Our thanks go to Mr. W. C. Thomas who brought the Open Day to our notice.

This year marks the 250th anniversary of the birth of Gilbert White, 'the father of field naturalists' in the Hampshire village of Selborne, so a visit there was included in our summer programme. As it was expected that a large crowd would be attending the functions arranged for the actual date of his birth, July 18th, our visit was planned to take place on July 30th. The day was fine and warm after a most unsettled period of weather and a party of 49 proceeded by coach to Selborne where the new curator of 'The Wakes', Mr. John Clegg, welcomed them and showed them round the garden which is being restored after years of neglect. As their contribution to the garden and to perpetuate the link between the Bournemouth Natural Science Society and the Wakes, a

shrub, *Aralia spinosa* has been presented by the Society, but since the border in which the shrub is to find its permanent home was not yet ready, it was only in a temporary position in the garden. This plant, a botanical curiosity, was selected from Messrs. Hilliers' Nurseries by Mr. Roy Lancaster, who even took the trouble to transport it personally to Selborne. We owe him a debt of gratitude for his help in this respect.

During the afternoon the party was given a talk by Mr. Clegg on the work of Gilbert White and inspected the inside of The Wakes where the original part of the house has been restored to a likeness of the conditions in Gilbert White's time, while the remainder is used as a museum.

Early in this century the Gilbert White Fellowship had been formed to promote a general interest in Natural History and one of the most enthusiastic members was Mrs. Boyd Watt, who was also a member of the Bournemouth Natural Science Society. When in 1951 the Gilbert White Fellowship was dissolved, she was largely responsible for the transfer of their assets to our Society and the remaining 28 members of the Gilbert White Fellowship were added to our membership; three of these were still shown in last year's membership list. From the funds received, the Society contributed £50 towards the purchase of 'The Wakes' for a permanent memorial to Gilbert White and the balance was used to provide a seat to be placed at the top of the zig-zag. Unfortunately this seat has been maltreated by vandals but it is now in the garden at The Wakes and is to be repaired in due course.

Finally, mention must be made of the Gilbert White Exhibition arranged by the Bournemouth Natural Science Society as their local contribution to the Festival of Britain in 1951. A full account of this can be found in Volume 41 of the Society's *Proceedings*.

From these notes it will be realised that there is indeed a close link between the Bournemouth Natural Science Society and Selborne.

Mrs. M. P. Yule, who is also a very active member of the Hampshire and Isle of Wight County Trust, has contributed the following note on the administration of the New Forest: "Until fairly recent times the Verderers had authority over all the land in the New Forest outside the enclosures, but now the Forestry Commission controls the whole area. This has given rise to certain difficulties and great anxiety has been expressed over the cutting of unenclosed woodland, known as the 'Ancient and Ornamental' and the draining of bogs; factors which greatly affect the maintenance of species both of plants and animals, some of them very rare. Hence the Verderers decided to promote a private bill in Parliament to recover the authority they had lost. This needs funds and I suggested that the Bournemouth Natural Science Society might like to subscribe something towards the cost. A cheque for £5 was accordingly sent and received with thanks—"not only for the donation, but because, in a case like this, the backing of the larger societies is of such value."

Finally, may I once more record our thanks to all those lecturers and leaders who have so generously given their time and energy to maintain the high standards of this section.

A. K. Hunt, Chairman

Geography

The long vacant post of Chairman of the Geography Section, was filled by the appointment in January of Mr. John Robinson, a newly retired member of the Ordnance Survey, Archæological Staff, with over 30 years experience in that field.

Owing to the influenza epidemic which raged in Bournemouth in January, Miss Exton deputised for Mr. Robinson for the first lecture in January, and she illustrated by slides, lecture and pictures.

February the section welcomed Hallam Barnes, sometime writer and parliamentary candidate for Bournemouth, who lectured on Meandering down the Welsh Border, showing pictures of interesting features.

At the March meeting Thomas Haydon Esq., retired from the Ordnance Survey, gave a splendid talk, illustrated with exclusive films and slides, on Tibet and the Lamas, from personal experience of that area.

In April the Society had a novel experience, searching for Triangulation and Revision Points in the vicinity of the B.N.S.S. premises. Armed with Ordnance Survey maps the party created much interest and amusement to the general public, who wondered what the members were doing, peering along the ground and on wall junctions for Survey Points. Many enquiries ensued.

On May 20th, Mr. Robinson conducted a party of 30 to the new £4½ million headquarters of the Ordnance Survey, opened in May by the Queen and Prince Philip. The party was given VIP treatment and conducted round the printing and map folding sections. Archæological members of the staff answered questions whilst the members enjoyed refreshments.

In June the members tried their hands at surveying the Society premises, taping and observing with an optical square. The members quickly formed a sense of direction, and gaily raised the Line. A film record of the proceedings was made to be shown in the Winter session.

For the August meeting a party of 35 went to Poole for a boat trip round the Harbour. Miss Glover, of the Harbour Master's Office, gave a talk on the Bay and points to be noted on the landscape. Three temporary members from Germany, Lady Doctors of History and Geography, were very welcome members of the party. Owing to a misunderstanding the party nearly missed the boat. However, after a little delay another vessel turned up and the party embarked, the water was very smooth and the mild and pleasant weather tempted most to sit outside and enjoy the refreshing air. The afternoon was rounded off at the Winter Gardens, with light refreshments.

John Robinson, Chairman

Geology

In March, the Chairman of the Section gave an account of the growth and development of our Museum, with particular reference to the Geological Section. This was followed by an exhibition of a suite of fluorescent minerals from North America by Dr. Doris Odlum.

The chairman pointed out that the Museum owed its origin to a noted local physician, the late Dr. G. E. J. Crallan, who was President in 1903.

and was a keen collector of rocks, minerals and fossils. At first, the Society had no permanent home, but in 1912 when it was allotted accommodation in the new Technical College at the Lansdowne, the collections made by various members were brought together for the first time.

It was at this stage that efforts were made to use it as a nucleus for a town museum, unfortunately without any success. In 1919 however, our present headquarters were purchased for the Society by its enthusiastic and far-sighted officers; and it has since provided adequate accommodation for our extensive collections.

The geological exhibits are particularly notable; including the unrivalled collection of shells from the Barton cliffs, fossil plants and leaves from the vicinity of Bournemouth, outstanding Purbeck fossils; and in addition rocks, minerals and fossils from almost every geological formation in Britain. The great majority of these have been scientifically identified and named by experts, and in the opinion of the lecturer, constitute one of the most notable geological collections in the country.

In her account of the fluorescent rocks Dr. Odlum showed an interesting suite from the desert regions of California, Arizona and the adjacent parts of North America. These included fluorspar, calcite, uranium, barium and zinc compounds which show a characteristic glow in transmitted light; but when exposed to the so-called 'dark light' (a form of ultraviolet rays) exhibit a varied range of colours. Dr. Odlum, by means of a holder transmitting these rays, showed how these rocks emit a most striking range of vivid colours.

In mid-July, the geological section had an interesting coach tour through West Dorset under the guidance of Mrs. Sephton and the Chairman of the Section. It was a repeat of a former successful tour, briefly referred to in last year's *Proceedings*. This year however, a diversion in the route between Evershot and Beaminster enabled us to examine the so-called Horestones; two large sarsen stones situate on the main Crewkerne-Dorchester road at Toller Down. These have been obligingly preserved by the Dorset County Council, and consist of siliceous breccia. They are very similar to other sarsen stones or greywethers found in many places on the Chalk Downs, and are generally looked upon as remnants of a Tertiary formation, formerly more widely spread over the whole region.

D. A. Wray, Chairman

Physics and Chemistry

In the first three months of the year, a series of five lectures on physics were given, at fortnightly intervals, under the joint auspices of the Society and the Extra-Mural Department of Southampton University. We were lucky to have as our lecturer Dr. Kurt Kellner, PH.D., a member of the staff of the Physics Department, who chose as the title for the series "A Personal View of some Aspects of Modern Physics: Some Answered, and Some Unanswered Problems".

The first lecture dealt with "The Philosophy of Physics (causality, determinism, chance)".

Science has developed through man's attempts to place natural phenomena into some kind of order. The scientific method is by no means obvious and it has taken man centuries to learn how to set about to observe Nature and to develop the many branches of science which we know today. In the course of this development man has learnt to observe events, to interpret the observations, to construct theories and to predict new phenomena. Experimentation means to reduce observable events to their simplest terms under varying environmental conditions.

The basic principle which was recognised in the development of science, and particularly physics, was that an event must be preceded by a cause. This principle of causality has been considered to be applicable to macroscopic as well as microscopic events.

In the early years of this century a new picture began to emerge. The hitherto familiar distinction between matter and radiaton was shown to be invalid on the atomic scale. Experiments have shown that radiation may behave like matter (e.g. photo-electric effect), and that matter may behave like radiation (e.g. electron diffraction). This duality of matter and radiation was responsible for the development of new theories (Wave Mechanics, Quantum Mechanics, 1927) with far-reaching consequences.

It has always been considered true that when the position and the momentum of a particle are known at a certain instant the whole future (and past) history of the particle is determinable. The precision, however, with which such measurements could be carried out and checked was not unlimited, due to the imprecise nature of instruments and particularly due to Brownian motion which is always present on a microscopic scale and which introduces a certain degree of randomness. The laws of chance became important in atomic physics. But quantum mechanics introduced a new principle which forms a definite limitation to the precision of our measurements and which is of the utmost importance to atomic and nuclear physics. This is the uncertainty principle (Heisenberg) which states that if, say for a particle, $\triangle x$ is the uncertainty in position and $\triangle p$ the uncertainty in momentum, then $\triangle x.\triangle p \approx h$, where $h = 6{\cdot}6 \cdot 10^{-34}$ Js (Planck's constant). In other words a precise knowledge of one of these factors implies a total ignorance of the other. It is therefore impossible to determine precisely the future course of a single particle for reasons quite different from those given above. This uncertainty principle can be expressed in different ways; one consequence is that, at least for a single atomic event, the principle of causality may no longer apply.

Lecture 2—"Matter and Energy". This talk was a discussion of the basic principles of thermodynamics dealing with energy transformations and the special role played by heat energy. Although thermodynamics applies to macroscopic systems, a reinterpretation is required when applying it to microscopic systems and also to nuclear energy.

Lecture 3—"The Building Blocks of Nature (elementary particles)". This is a very complex subject. Prout, in 1815, had suggested that all elements were built out of hydrogen atoms. Consideration of the periodic table will convince that this cannot be so, since, if it were, all elements would have atomic weights which would be integers on a scale in which the atomic weight of hydrogen is unity. Rutherford suggested that atomic

nuclei, besides containing protons (hydrogen nuclei), also contain other particles which have the same mass as protons but are electrically neutral. He gave the name "neutrons" to such particules. The electron and the proton were for many years considered to be the only truly fundamental particles, but now the neutron appears on the scene. However, there is one great difference which distinguishes the neutron from the electron and the proton—the latter are stable, but the neutron will decay into a number of new particles in approximately twelve minutes.

Since the second World War, especially with the advent of the giant particle accelerators, the number of known particles has multiplied many times. There is now a vast number of fundamental particles known, most of which are extremely unstable and decay into other particles, which in turn also decay—the whole process of continual interchange going on continuously. Physics is almost back to the stage in which Chemistry was at, say, the beginning of the century, when there were some 92 known elements. The whole story is of extreme interest.

Lecture 4—"Atoms and the Structure of Matter". This included such important matters as the investigation of crystals, of liquids and gases, and a consideration of plasma and its composition as a function of temperature. The question of whether there is an upper limit to temperature was also discussed.

Lecture 5—"The Fascinating World of the Refrigerator". In 1911 Kamerlingh Onnes baffled the scientific world by the announcement that near the temperature of the boiling point of liquid helium, about 4.2°K, the electrical resistance of solid mercury makes a large jump downwards and becomes practically zero. Later it was found that superconductivity was not confined to mercury alone, but to many other metals (e.g. lead and tin), and also to impure metals and alloys. The application of these facts to technology was considered in some detail.

There was an excellent attendance at all the above meetings, and the lectures led to keen discussion and were very much appreciated.

In September a party of 25 members paid a most interesting and instructive visit to the Laboratories of I.B.M. at Hursley Park, Winchester.

It is a strange twist of fate that the computer—a keystone of modern technology—is designed and developed in what was once an area steeped in history and elegance, far removed from the modern machines of the present day.

Hursley House, surrounded by lawns and spreading cedars, was built by Sir William Heathcote in 1724, on the site of an earlier house, Hursley Lodge (c.1609), which was for a time the home of Richard Cromwell, son of Oliver Cromwell.

In 1958, the I.B.M. Development Laboratory transferred from London to Hursley Park—for a temporary stay—with a staff of about 40. Two floors of Hursley House were occupied, and the temporary stay became permanent. Three office blocks were added, blending well with the rural surroundings and with Hursley House itself, and the staff now numbers well over 1,000.

During our visit we were given a most useful introductory talk. It

was explained that today's digital computer is descended from a long line of mechanical aids to calculation (of which the ancient Chinese abacus may be said to be the earliest example). It is different, not because of any magical new method of reasoning, but because it is automatic and fast, thanks to electronics, and general-purpose, thanks to the people who write the instructions and programmes (the "software") which tell the machine what to do.

The heart of the computer is its central processor, which performs simple logical operations at incredible speeds, and its main store, or memory, where the subject data are held and manipulated. Other hardware elements include additional memory units, and a variety of peripheral devices which enable data to be fed into and out of the computer.

The computer responds to machine-type instructions which are unintelligible to most people. Most programming is done using "high-level" languages—stylized mixtures of plain language , mathematics and code words, such as Algal, Cobol and Fortran. The two are linked by a translation code known as a compiler. Software skill comes not only in writing accurate programmes, but, even more importantly, in writing efficient ones which do not waste the capacity of the machine.

During the tour of the laboratories we saw a wide variety of the machines at work, most of them operating 24 hours a day. We were taken to the Storage Department, which has recently announced a new product, the I.B.M. 5444 Disc Storage Drive. This consists of two magnetic recording discs mounted on a common drive. Nearly five million alphabetic characters can be recorded on to the discs, and can be read off the discs when needed in a few tenths of a second. Disc storage is not as fast as core storage (a computer's main memory), but to compensate, discs store information in greater quantity at lower cost. In the designing and developing of the I.B.M. 5444, the skills of many different scientific disciplines were applied, including magnetics, mechanism development, magnetic recording, circuit design, control logic and even aerodynamics.

Test facilities available at Hursley include: —

(1) A climatic chamber, in which a wide range of environmental conditions can be reproduced.
(2) An altitude chamber to show how systems perform under various air pressures.
(3) Equipment to stimulate electrical interference.
(4) An acoustic chamber to measure the level of noise which emanates from a product.
(5) A dust contamination chamber to show how systems perform in atmospheres of varying impurity.

Programmes are tested as rigorously as machines.

We came away with the feeling that we were beginning to understand a little more about these strange and wonderful machines, that computers are made for man and not vice versa, and that future progress will depend increasingly upon our ability to develop ways to communicate with the computer directly on our own terms— that is, through handwriting or speech.

I. M. Bircumshaw, Chairman

Zoology—Entomology

The summers of last and this year seem to augur the onset of a cycle like that experienced in the "twenties", of severe winters and long fine summers. Generally the season has been an improved one for Lepidoptera. The dry period resulted in an individual size below average amongst imagines resulting from midsummer larvæ. The population of the localised *Euphydryas aurinia, Melitæa cinxia* and *athalia* were all above average, the nets of young larvæ of the former being very numerous at Hod Hill, after hibernation. It has been a poor season for migrants. Two of our members reported seeing small lepidoptera they could not identify. From descriptions, these may have been extreme aberrations. A member bred a fine example of *ab: nigra* (*Aglais urticæ*).

A former chairman of this Section has kindly contributed the following data from his journal, which are of great local interest. Mr. S. C. S. Brown, F.D.S., is a specialist on Micro lepidoptera, particularly Nepticulæ.

HEMIPTERA HOMOPTERA

Homotoma ficus. Discovered in 1961 on Fig in two gardens in Richmond Park Road. New to Britain, a native of the Mediterranean region. The trees were destroyed this year; it may occur elsewhere in Bournemouth.

Opsius stractogalus. Another species inhabiting the Mediterranean countries. Attached to Tamarisk. First found in Britain in 1901 at Pagham Harbour, Sussex. Seen on Tamarisk in Bournemouth in 1964, in Harewood Avenue and still there this year, in spite of severe thinning of the shrubs by Corporation workmen.

Stephanitis rhododendri. This delicate little insect was discovered in Britain in 1901 in Surrey. It subsequently spread over much of the country as far as Southern Scotland, attached to rhododendrons. Recently it has been dying out, its range is now much restricted. This year found in a Ferndown garden.

LEPIDOPTERA

Nepticula sericopeza. Known from Kent, Sussex and Cambs. The larva mines the seeds of the common maple. Found this year at Christchurch, Wimborne and near Fordingbridge.

Lectures and other activities initiated by this Section are listed elsewhere in these *Proceedings*. The following is a synopsis of the four lectures held, one by a visiting speaker. The lecture given on 8th November, was illustrated by over a hundred coloured slides. The speaker introduced his subject by detailing the main theories advanced by the late Messrs. Bates and Müller. He continued by describing the complex forms evolved by many species of harmless and palatable insects in simulation of nauseating and noxious ones which flaunt warning colouration and marking patterns. His slides showed widely varied female forms (Sexual polymorphism) in some tropical butterflies, e.g. *P. Memnon* (Malaya) and *P. Dardanus* (Africa). All showed remarkable likeness to one or more quite differing species, all revolting to potential preditors. He then instanced many other insect groups which had evolved advanced forms of "disemblance".

At a well attended lecture held on 14th February, the speaker used the blackboard as well as numerous coloured slides to illustrate the Global Migration of Lepidoptera. He emphasised that the few researchers in this field had raised many theories and established some basic facts but the subject still remains full of uncertainties, primarily due to the paucity of observers. Considerable advance in knowledge has been possible concerning a few species, e.g. *Danais plexippus* in Canada and N. America; *Pieris Brassica* in Europe and *V. Cardui* in the Mediterranean and Europe. The lecturer emphasised the influence of air streams on all flying things. This particularly applies to "trade winds". He explained the differences between air and ground speeds and that although the sudden mass movements of Lepidoptera sustained over many days, in a common general direction was caused probably by overcrowding and consequent insufficiency of foodplants for ovaposition. Far more data is required on that and many other aspects. He stated that examples are: — The origins of the regular seasonal movements of certain species recorded in areas far apart; do species have an instinctive magnetic compass?; can night-flying moths navigate by stars?; can insects judge "drift" to maintain a direct track in light air-streams?; the cause of the onset and subsequent cessation of the urge to journey from the "birth area". The speaker asked members to note any arrivals and movements of migrant Lepidoptera and to advise him so that he may co-ordinate and pass on to the Natural Science Museum in London.

On 25th April, the Society had the great pleasure of hearing Mr. D. J. Shillicoch, B.SC., a lecturer at the Imperial College, on the "Parasites of Birds". His talk was illustrated by many superb electromicro-photographic slides. Members were told true insect parasites suck blood *Siphunculata,* but in the case of birds, most of their lice are biters *Mallophaga,* specialised to feed on feathers. They cling, yet are very agile, a necessity when living upon a flying host! He said that the lice move to the feather "buds" at the start of the moult. Mr. Shillicoch detailed the life cycle of some fish parasites which enter birds which eat fish. He described how arriving Swallows, etc., on return to their breeding haunts become reinfested from their old nests as do their young. Amongst many other interesting facts was the aspect of different parasitic species at the different climatic ends of their migratory journeys.

On September 9th, the speaker showed coloured slides of several species of European Lepidoptera and of a few insects of other orders, also the typical relevant terrain and some of their foodplants. He mentioned some of the difficulties experienced when trying to photograph them in natural conditions, especially on mountains.

J. L. C. Banks, Chairman

Zoology—Mammalia

A lecture on Deer, illustrated by slides, episcope and tape recordings was given by the Chairman, Miss K. M. Bennetts, on 11th April.

The lecturer concentrated on the means of identifying the five species of deer which could be seen in the New Forest—Fallow (four different colourations, common, menil, white and black), Roe, Sika, Red and

Muntjac. First the species were described as to colour in summer and winter pelage, size and habitat. Particular emphasis was laid on recognition by their rump, which was often all that was seen of the disappearing deer! The Fallow deer has the most distinctive rump (*speculum*), being well outlined with a band of dark hairs and a line of black hairs run the length of the ten-inch tail. The Sika deer also has a black bordered *speculum,* but the tail is shorter and has not always the black hairs. Red deer have a straw-coloured *speculum* and a brown five-inch tail. Roe deer's *speculum* is shaped like a powder puff, the tail being invisible.

Antlers of the various species were used as illustrations and the lecturer pointed out that these were grown from the bony outgrowths (*pedicles*) on the frontal bones of the skull. During the period of growth the antlers are covered with velvet, skin containing blood vessels, which feed the developing antlers. About four months later, development is complete and the velvet is removed by fraying on bushes or young trees. The antlers are then said to be clean and the larger species keep them until about April but the Roe casts about November. A new pair of antlers is grown each year but the number of tines is not indicative of the age of the deer. The glands of the species were explained in relationship to rutting activities, and tape recordings were played of the voices of Red, Sika and Fallow at their rutting stands. Finally, slides were used to emphasise points raised in the early part of the lecture. Dr. T. M. Bell occupied the chair and thanked the lecturer for her interesting talk.

As a departure from mammal expeditions a visit was made to the Snake Pit in the New Forest by the courtesy of Mr. Thompson, who spoke of the three species found in this country.

These Snakes (Serpentes or Orphidia of the order Squamata) are represented by the Grass or Ringed Snake (*Natrix natrix*) the Smooth Snake (*Coronella austriaca*) *and the Adder or Viper* (*Vipera berus*). The snake's body is elongated and because of this there is not space for paired organs, e.g., kidneys to lie side by side and so they are placed one above the other. The left lung is vestigal, only the right one remains functional and of that the hind portion is not cellular but acts as an air-sac. The backbone is made up of three types of vertebra: one neck vertebra which bears the skull. Any number from a hundred body vertebræ, each one supporting two ribs, these being attached to the backbone by cup and ball joints: the tail vertebræ has upwards of fifty.

The eyes, unlike those of lizards, have no lids. The pupils may be round as in *Natrix natrix* and *Coronella autriaca* or vertical as in *Vipera berus*. The eyeball is covered by a transparent skin (*brille*) beneath which there is restricted movement. There are no external ear-openings thus the snake does not hear through the normal channels but picks up "sound" vibrations by bone conduction. The two halves of both jaws can be moved independently and the jaws themselves are exceptionally flexible, being only loosely attached to the skull. The teeth, recurved, are not implanted in sockets in the jaw bone but are simply attached to it. When a tooth drops out it is quickly replaced by one of the reserve teeth which lie in the inner side of the gum. The two poison fangs of the Adder lie horizontally in the mouth, otherwise their length would prevent

the mouth from closing. They also can be replaced. The tongue is long, slender and deeply forked, which it is not in the lizards, and is covered with numerous sensory cells. It can be retracted into a basal sheath, which lies below the opening to the windpipe, when it feeds or bites and can be extruded without opening its mouth, through a notch in the upper jaw. It is used as an organ of smell in conjunction with a special organ known as Jacobson's Organ, which lies in a cavity in the roof of the mouth. These play an important part in picking up the scent of food, as in the case of the Adder, that has bitten, but not killed outright, its prey which has moved away.

The heads are covered with symmetrically arranged scales, from which arrangements the species can be identified. The scales covering the upper and lower parts of the body are known as dorsal and ventral respectively; those covering the last part of the underside of the tail as the subcaudle.

Ecdysis, i.e. the casting or sloughing of the outer layer of the epidermis, includes also that of the epidermal covering (*brille*) of the eye. A snake about to slough can be recognised by loss of colour, frequent yawning and opacity of the eye covering. A day or so beforehand the eye clears. Yawning helps to loosen the "skin" round the mouth from which point the sloughing begins. The head is rubbed against stones or herbage and the "skin" is peeled off inside-out, as the snake wriggles out of it. The whole skin is extensible so that when incredibly large prey is swallowed, as allowed by the flexible jaws, each scale can be separated from its neighbour.

The trachea (windpipe) which ends in the glottis (mouth of the windpipe), can be projected into the mouth, thus enabling the snake to breathe during the drawn-out process of swallowing a large creature. The alimentary canal consists of an oesophagus (gullet), a tubular or sac-like stomach and intestines. The gullet is long, thin-walled and highly distensible, being the repository for food before that enters the stomach, but it secretes no digestive juices. Digestion in the stomach is rapid but the absorption of a meal is slow and in consequence of this a snake need not feed every day.

The anal glands, which produce a thick and oily secretion, are operational at all times of the year but are more active in the spring, possibly to bring the sexes together. In this country, pairing takes place in the spring, soon after emerging from hibernation. Normally, the eggs which will produce young in one season are formed in the ovaries during the preceding year and are ovulated and fertilised at the spring mating. The white leathery-like shell is made up of thread-like fibres, one layer being superimposed upon the one below and at right angles to it. A deposit of calcium carbonate covers the outer layer. The amount of albumen is slight and the air-space common to birds' eggs is absent. Moisture, necessary for the development of the embryo, must be obtained externally. Heat accelerates growth and the Grass Snake prefers such places as manure heaps. In the viviparous snakes, e.g. the Adder, every advantage of basking is taken by the female to expedite embryonic development. If the summer is wet and cold, the embryos may be reabsorbed or retained in the body until the following year. The number

of young or eggs depends upon the age and size of the female. Young which are hatched from eggs do so with the aid of an egg-tooth placed in the front of the upper jaw. It is discarded a few days later.

Mr. Thompson described the three species as he displayed them from the vivarium.

Mr. Philip Smith spoke on Underwater Photography in relation to local marine life. He explained the exercise on diving and photographic equipment. Diving itself was nothing new, for example, the Greek sponge divers; but the first free diving apparatus was designed and used in 1825 by W. H. James. Underwater photography was first introduced in the 1890's by a French biologist. In 1943 Captain Jacques Cousteau in collaboration with Emile Gagnan perfected the aqua-lung.

Mr. Smith went on to describe some of the flora and fauna of the Dorset coast. Tilly Whim produces jungles of seaweed which supported a variety of sea life and Kimmeridge Bay, uniformly shallow, contains certain seaweeds not found elsewhere. The ledges in Warbarrow Bay provide a sheltered habitat for lobsters and wrasse, while the sandy and rocky beds were occupied by crabs and prawns. The scorpion fish was of interest because of its camouflage and it was harmless. On the other hand, the conger eel, normally shy and retiring could, when provoked, inflict a nasty injury. The sea-urchin, which varied in size from a hen's egg to that of a football were browsers and were not common on the Dorset coast. They were common in Devon as were the coral-like anemone, known as the Devonshire Cup Coral. Another browser mentioned was the Sea Hare (Sea Slug) which when pursued emitted a brilliant purple ink. Several Starfish were shown—Bright Purple, Brittle Star and Common. The last mentioned did much damage in mussel-fields and oyster-beds. The suckers on the legs prised the shells and the soft parts were, by means of an extruded stomach, extracted.

Slides of the various flora presented a kaleidoscopic-like counterpane by means of special flash photography revealing in particular the beauty of the Trumpet and Dahlia Anemonies. Sponges also were shown, many of them looking like jewels set in the rocks. Of the larger species, Mr. Smith showed the Yellow Breadcrumb and the White Dead Man's Fingers.

K. M. Bennetts, Chairman

Zoology—Ornithology

The interest and enthusiasm shown in this Section is very encouraging and we are glad to welcome a number of new members.

A big effort has been made to identify and memorise bird calls and song, and to this end an indoor meeting with the gramophone was held in July and it is hoped to arrange another next spring.

Two Field Meetings have been held each month throughout the year and we have again added several new areas to the places regularly visited.

At Radipole Lake we were joined by Miss Mildred Crosby, the well-known Dorset ornithologist, and while observing wintering duck and gulls we found that a Bittern provided a splendid illustration of camouflage. The bird was standing amongst the reeds, grasping a bundle of

stems with its feet, the head and bill pointing to the sky, and the golden-brown plumage, mottled and streaked with black, blending perfectly with its surroundings. Suddenly someone noticed the pale streak on the underside of the neck as the Bittern moved its head slightly, and we realised that we were only a few yards away from a rare winter visitor to the Radipole reed beds.

Mr. Richard Hedley, the local Warden for the Hampshire and I.O.W. Naturalists' Trust, conducted us round his Reserve at Tichfield Haven in February. A small party of Whooper Swans were on the Meon River. They are slightly larger and longer-necked than the Bewick Swans we see each winter by the Avon at Ibsley, with a larger area of yellow on the bill, which extends in a wedge to below the nostril. After an interesting walk over the Reserve we were glad to be able to eat our sandwiches by the fire at the Warden's cottage, and were very grateful for the tea and coffee that Mrs. Hedley provided.

The avenue of beech trees at Badbury Rings provides ideal winter habitat for Brambling, the northern relative of the Chaffinch. Here they feed under the trees and in the adjoining fields, flying up into the beeches when disturbed, in mixed parties with other finches. They can be recognised in flight by a conspicuous white rump and when perched in the trees by pale, almost white underparts. We held a Field Meeting there in March, just before the birds returned to their breeding grounds in northern Scandinavia and further east, so that several of the cocks were in spring plumage, and their glossy black heads further distinguished them from our familiar Chaffinch.

New ground was also covered at a Field Meeting to Winspit and Chapman's Pool in May, and we were most grateful to Mr. Simon Corbett for giving us the benefit of his local knowledge. This part of the Dorset coast is of particular interest in spring as a landfall for summer migrants. One of the most interesting of these, the Lesser Whitethroat, was identified this year for the first time on a Society Field Meeting, in three different localities—two in Dorset and one near Ripley in Hampshire. In each case it was the song which attracted attention—a short rattling repetition of one note not unlike that of the Cirl Bunting—but we caught only a glimpse of the bird, singing as it moved through the bushes. It is smaller and greyer than the Common Whitethroat with a much more skulking habit.

We noted that the Common Whitethroat, conspicuously absent last summer from most of its usual haunts, was to be seen once more, but only in small numbers.

The Chairman took a small party of members for a two-day visit to the Wildfowl Trust at Slimbridge at the beginning of January, something new for this Section, which proved a great success, and Miss E. Balfour-Browne again led a very successful evening meeting to woodland near Verwood when Woodcock, Grass-hopper Warblers and Nightjars were heard.

During the winter Mrs. Angela Hughes came to lecture to us on 'Lundy, Isle of Puffins' and one of our members, Mr. Douglas Bisiker, spoke to us about 'bird recognition', a talk of great practical interest

which was to have been continued in April when unfortunately Mr. Bisiker was taken ill. He is a most experienced and dedicated ornithologist, always ready to help other members, and is much missed by our Section.

Three Field Meetings were allocated to the B.T.O. Atlas Project, now in its third year. It appears from the Hampshire Organiser's Report that this part of Hampshire has been fully covered for all but one or two difficult species, and he suggests that next year one or two visits to places in the north of the county would be of great value.

The Chairman would once more like to thank Mrs. V. Follett, who undertakes a large part of the arrangement of the Programmes for this Section, and also all those who have led Field Meetings or assisted her in any way. She is always glad to have suggestions for future Field Meetings.

L. M. Maddox

Cine Film Subscription Programme

During the 1969/70 Ciné Season the following seven monthly programmes were shown: —

October 1st.—River Murray; North to the Dales; Journey into Spring.

November 5th.—Dead Sea Scrolls; Hook, Line and Sinker; Darwin and the insects of Brazil.

December 3rd.—The Seekers; South African Animal Kingdom; Bull Ring Shopping Centre, Birmingham.

January 7th.—Turkey the Bridge; Oliver Kite's Fawley; Castles through the Ages; Springtime at Springfields.

February 4th.—Aristotle; Lake Wilderness; Swallowtail Story.

March 4th.—Programme on Flora and Fauna of New Zealand.

April 1st.—Culture and Solidarity between People; Living Arts of Japan; Private Life of the Kingfisher.

It was generally considered that the highlights of the season were: "Oliver Kite's Fawley", which detailed the wild life now existing, side by side with the Refinery there and, unfortunately, was the last documentary film to be made by Major Oliver Kite before his death.

"The Private Life of the Kingfisher", acclaimed as the finest film ever made on an individual species, and seen by our members prior to its showing on BBC1 the following month.

"Swallow Tail Story", which showed the life sequence of the Swallow Tail Butterfly against the beautiful background of the Norfolk Broads. This film, incidentally, was chosen by the Selection Committee of the National Film Archives to be permanently preserved as a film of artistic and scientific value.

Although disheartening to commence office with a 90% increase in film hiring charges, due to deterioration in postal services and consequent increased "in transit" period for films, succession to the Ciné Section was facilitated by the help of Mr. Mitton, who had not only completed the film bookings up to and including December, but was always happy to give the benefit of his experience. The help of Mr. Dudley, in charge of ciné projection, was greatly esteemed, also

those who helped with the collection of subscriptions. Finally, our thanks to those members of the Society who supported and subscribed to the Ciné Section.

G. Draper, Hon. Ciné Programme Secretary

Lantern Slide Collection

Colour transparencies have been received from Mr. E. Chambers—illustrating his Presidential Address—and Major Richman—recording further botanical specimens. The Society has now a nucleus collection of some four hundred colour transparencies and these have been catalogued in such a manner that any slide should be traceable with ease. The work of sorting and examining the many slides of the older form still continues slowly.

Slides from the collection have been used by lecturers on several occasions during the year and the Curator will be glad to help any lecturer should he require further material with which to illustrate a lecture.

J. C. Mitton

Garden

The garden has again suffered from the dry weather but, in spite of this, the shrubs have all made an exceptional amount of growth. The mimosa was covered with flowers for the first time since I took over the garden 18 years ago.

The bottle brush shrubs have done very well too and the bedding plants provided by Mrs. W. A. Laberge have brightened up the beds.

During the year valuable help has been given by Mrs. W. A. Laberge, B.A., Miss H. I. Payne, Miss R. W. Brown, B.A., Mrs. D. Clamp and others.

Winsom Chomé, Chairman

Library

During this session Miss E. Crichton Todd, who has given much help for several years, was appointed Hon. Assistant Librarian.

A number of recently published books were added to the Society's collection and it is gratifying that they were promptly borrowed. Total loans this session have exceeded 300.

At the end of the session, Mr. H. S. Holbrook retired as Hon. Librarian. He was appointed in May 1961 and during his service of 9½ years our books have been re-catalogued, with the assistance of Mr. D. T. A. Adams and Miss Todd, in accordance with the Universal Decimal Classification and separate card indices of Subjects and Authors compiled. Also modern steel shelving has replaced the old wooden structures and in addition new tables, chairs, carpets, curtains and lighting installed.

Since Mr. Holbrook was asked by Council to dispose of surplus books —to offset the renovation costs of the Library—the Society's funds have benefited by over £980.

The new Hon. Librarian is Miss E. Horne.

For the record I think this occasion should be taken to express the great debt of gratitude which I am sure all members of the Society feel is owing to Mr. Holbrook for all the work he has done for the Library during his term of office as Hon. Librarian and for the most efficient manner in which he has carried it out.

M. H. Cocke, Chairman

Museum

Judging by the increase in number of enquiries during the past year, the activities of the Society and its Museum seem to have become more widely known. For help in dealing with these enquiries and for general support the Hon. Curator wishes sincerely to thank the Chairmen of Sections and also the Hon. Librarian.

Mrs. V. Eaton has continued to give regular and untiring help, also taking an especial interest in conchology, and her arrangement of "The Sea Shore" in a wall cabinet has been enthusiastically viewed by our younger visitors.

In December the Society mounted a small display in connection with the exhibition "Education Out of Doors" at the Municipal College. Transparencies were shown illustrating our various Sections, the whole being organised by Squadron Leader J. L. C. Banks.

Acquisitions: —

Geological Maps: — presented by Mr. F. W. Moss.

Rocks from the Exeter and Durham districts: — presented by Mrs. B. Taylor.

Rock showing dentritic markings in silica from British Columbia: — presented by Miss E. C. Todd.

Fossils from Sherborne and the Fossil Forest, Mupe Bay: — presented by Mr. Tarrant Willis.

Weaver birds' nests (Ploceidæ family), Papyrus and Common Thorn Tree of Africa (Acacia), all from Kenya: — presented by Mrs. R. M. Bell.

Purpuranga—shell of snail from New Zealand: — presented by Miss E. M. Whitaker.

> This large snail is found in land on which "Kauri", the largest New Zealand timber trees, have been growing. It lays an egg, grey in colour, about the size of a sparrow's egg.

Owing to lack of space, much of our material cannot be on show, but the Hon. Curator is always willing to meet a member for a more detailed inspection of any particulars section of the Museum.

N. Sephton

Photography

Many excellent colour transparencies were shown each month during the winter session. The aim of the Chairman is, as usual, to give the Society a chance to see the beauties of a colour slide. Members were also given an opportunity to show their work.

The one afternoon given over to monochrome illustrated the camera

as a recorder of history with Messrs. N. Inglis and D. Smith's copies of old pictures and postcards of Bournemouth and Poole in the early days.

Our thanks to all the lecturers and to Mr. C. Holroyd and his helpers for projecting the slides.

U. M. Ogle, Chairman

Visiting Panel

During the year, owing to two deaths (Miss Oliver and Mr. Butcher) and one retirement from the panel, the visiting panel has been reduced to 20, including four on the visiting committee.

Those on the visiting list number 13, of which three are ex-members.

A. B. D. Edwards, Chairman

BOURNEMOUTH NATURAL SCIENCE SOCIETY

Summary of the Accounts for the year ended September 30th, 1970

1968/9		Receipts	£ s. d.	£ s. d.
701 17 0		Subs. to Sept. 30th, 1970	727 2 6	
91 11 10		Covenant Tax refunds ..	87 10 7	
				814 13 1
		Rents, etc.		
304 11 4		Royal Commonwealth Soc.	308 14 6	
100 0 0		Camera Club	100 0 0	
9 9		Dark Room	2 6	
				408 17 0
33 19 9		Royal Commonwealth Soc. gas	28 8 0	
4 4 6		Telephone Call Box ..	8 14 6	
36 11 3		S.E.T. Repayments	61 1 9	
6 5 0		Projection fees	6 5 0	
5 19 9		Sundries	43 16 0	
				148 5 3
63 17 3		Field Meetings refunds ..	44 8 3	
23 14 0		Garden Party (net)	20 0 0	
7 9 9		New Year Party (net) ..	15 8	
15 0		Teas (net)	7 11 10	
				72 15 9
305 5 5		Interest on Investments ..	368 12 0	
206 18 4		Income Tax refunds (on interest)	200 19 8	
				569 11 8
		Total of Ordinary Receipts		2014 2 9

1968/9		Payments	£ s. d.	£ s. d.
196 5 0		Caretaker, wages, insurance and S.E.T.	209 15 0	
198 14 6		Insurance	186 3 6	
289 2 0		Maintenance	261 15 10	
275 1 11		Rates	300 2 1	
				957 16 5
23 12 11		Coal	39 14 2	
212 17 5		Gas	215 0 1	
130 15 4		Electricity	136 4 1	
12 8 6		Water	14 4 6	
				405 2 10
88 18 4		Printing and Stationery ..	141 11 11	
102 15 0		Proceedings	159 10 0	
41 6 2		Telephone	39 9 4	
52 18 10		Postages	54 15 8	
				395 6 11
90 0 0		Garden	120 0 0	
— — —		Field Meetings	21 0 0	
14 13 0		Subscriptions to other Societies	19 18 0	
16 18 7		Sundry payments	35 10 1	
				196 8 1
		Total of Ordinary payments		1954 14 3

Receipts other than Ordinary		Payments other than Ordinary	
Reconciliation	1 10 0	Purchase of £1250 Bonds, 9% 1994	1299 11 9
Repayment of Swindon Borough Mortgage ..	500 0 0	Transferred to Deposit Account	500 0 0
Legacy from the late Miss I. Sheffield	500 0 0	Balance at Bank	65 19 10
Transferred from Deposit Account	720 0 0		
Donations	5 0 0		
Balance at Bank 30-9-69 ..	79 13 1		
	£3820 5 10		£3820 5 10

We have examined the above Accounts with the books of the Society and Vouchers for payments and certify the same to be correct.

F. J. WOOD, Hon. Treasurer

ALBERT V. LAWES
A. H. MIDDLEMAST } Auditors

DEPOSIT ACCOUNT

	£	s.	d.		£	s.	d.
Balance at Bank, 30-9-69	629	8	0	To Current Account	720	0	0
Interest	48	7	4	Balance at 30-9-70	457	15	4
From Current Account	500	0	0				
	£1177	15	4		£1177	15	4

CINE ACCOUNT

	£	s.	d.		£	s.	d.
Balance forward 30-9-69	68	10	8	Hire of Film and Postages	18	8	7
Subscriptions	28	19	0	Balance forward 30-9-70	79	1	1
	£97	9	8		£97	9	8

LIBRARY ACCOUNT

	£	s.	d.		£	s.	d.
Balance at Bank and in Hand 30-9-69	120	12	6	Library Expenses	4	10	4
Sale of Books and Periodicals	50	10	0	Library Maintenance	24	14	0
				Balance at Bank and in Hand 30-9-70	141	18	2
	£171	2	6		£171	2	6

FIELD MEETINGS ACCOUNT

	£	s.	d.		£	s.	d.
Cash in Hand, 30-9-69		17	1	Expenses Field Meetings	32	16	8
Surplus from Coaches	63	5	0	Transferred to General Account	44	8	3
Per General Account	21	0	0	Cash in Hand	7	17	2
	£85	2	1		£85	2	1

GARDEN ACCOUNT

	£	s.	d.		£	s.	d.
Per Treasurer	120	0	0	Balance due 30-9-69	12	4	5
Balance due 30-9-70	18	18	2	Gardener	122	8	0
				Christmas Box	1	0	0
				Weedkiller		14	6
				Secateurs		19	3
				Plant purchase	1	12	0
	£138	18	2		£138	18	2

INVESTMENTS

Narrow Range

	Cost			Value 30th Sept., 1970		
	£	s.	d.	£	s.	d.
£1000 British Transport 3%, 1978/1988	775	4	0	505	0	0
£1500 Consolidated Stock 4%	979	0	0	652	10	0
£1200 British Electricity Stock 4¼% 1974/1979	984	4	0	906	0	0
£1600 Manchester Corporation Bond 6¾% 1972	1600	0	0	1600	0	0
£ 150 Wycombe R.D.C. Mortgage 7¼% 1972	150	0	0	150	0	0
£ 500 Luton Corporation Mortgage 7¼% 1975	500	0	0	500	0	0
£ 500 Treasury 9% Bonds, 1994	511	17	9	501	17	6
	£5500	5	9	£4815	7	6

Wide Range

£ 600 Exeter Corporation 6¾% Mortgage, 1971	600	0	0	600	0	0
£ 350 Wycombe Rural District Council Mortgage, 7¼%, 1972	350	0	0	350	0	0
1830 Units Hill Samuel Income Trust	3003	0	0	2581	0	0
£ 750 Treasury 9% Bonds, 1994	787	14	0	755	12	6
	£4740	14	0	£4286	12	6

Lectures, Field Meetings and Visits, 1969-70

Lectures open to the public free of charge are shown by the letter P *after the date. Degrees and other qualifications are inserted only after the first mention of names.*

The programme comprised 66 Lectures, 70 Excursions and Field Meetings, 12 Members' Days and 7 Cine Subscription Programmes, making a total of 155. The Annual General Meeting, 12 monthly Council Meetings and Regular meetings of Committees were held as usual.

GENERAL

		LECTURE	LECTURER
1969			
Oct.	11	Presidential Address : The Legacy of Egypt	Ernest Chambers, F.L.S.
Oct.	18	Christmas Cruise, a Journey to the West Indies	E. R. Bidder
Nov.	29	Rome	W. H. Tattersall, M.A., M.D.
Dec.	13P	Purbeck the Unseen	Monica Hutchings
1970			
April	15	The Cotswolds — The Area to be visited on the Four-day Field Meeting	General : W. C. Thomas Geography : W. F. Perry, B.SC.
Sept.	21	Freshwater Biological Association	D. F. Westlake, B.SC., M.I.BIOL.

April to May	28 1	Four Day Field Meeting in Cheltenham	W. C. Thomas
June	6	Efford Experimental Horticultural Station	W. C. Thomas

SECTIONS

Archaeology and History **Chairman : Mrs. C. Simpson**

1969			
Oct.	25	Some Aspects of Turkey	Mrs. M. Grange-Bennett
Nov.	19	Dorset and its Manor Houses	Mrs. J. Douglas Taylor
Dec.	17	India and Kashmir	Mrs. J. C. Earl
1970			
Jan.	24	Cornwall	G. Holroyd
Feb.	18P	Operation Neptune	L. R. Townson
Mar.	16	The Origin of Man	Major Geoffrey G. Watson, E.R.D., F.R.A.I., F.S.A.SCOT., F.Z.S., A.M.A.
April	18	Giants' Graves and other Megalithic Monuments	J. M. Bell, B.A., M.B., CH.B.
July	15P	The Music of Frederick Delius	F. C. Fildes
Aug.	19P	The Karnak Complex and Theories on the Giza Pyramids	Sqdn. Ldr. J. L. C. Banks

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May	28	Visit to Silchester The Roman Town of Calleva Atrebatum	Mrs. C. Simpson
June	30	Visit to Longleat House and Wild Life Park	Mrs. C. Simpson and Miss K. M. Bennetts
Sept.	3	Visit to Uffington White Horse, Uffington Castle and Wayland's Smithy	Mrs. C. Simpson

Astronomy **Chairman : C. M. Pither,** F.R.A.S., F.I.L.S.

1969			
Nov.	22P	Our Moon: Part 2, The Lunar Features	C. M. Pither
Dec.	20	Space, Time and Distance	C. M. Pither
1970			
Jan.	31	Visitors to the Earth	C. M. Pither
Feb.	28	Our Moon: Part 3, The Structure of the Lunar Surface	C. M. Pither
April	4	The Summer Sky	C. M. Pither

April	14	A Visit to the Observatory of C. M. Pither at Christchurch	C. M. Pither

Botany **Chairman : Mrs. A. K. Hunt,** B.SC.

1969			
Oct.	15	Pyreneean Flowers	Sqdn. Ldr. J. L. C. Banks
Nov.	15	Flower Hunting in the Cape Mountains, Part 2	W. S. Strain, M.A.
Dec.	15	English Woodlands	Mrs. A. K. Hunt, B.SC.
1970			
Jan.	19	Woodlands: the Ground Flora	Mrs. A. K. Hunt, B.SC.
Feb.	21	Studies and Cultivation of Orchids	L. Miller
Mar.	23P	Our Changing Flora	R. W. Butcher, D.SC.
June	17P	Plant Hunting in Kashmir	Ivor Barton

1969			
Oct.	3	Fungus Foray	Mr. and Mrs. Pickering
1970			
April	20	Canford School Grounds	W. S. Strain
May	8	Lyndhurst for Rushpole Wood	Mrs. Goodhart
May	23	Wootton Enclosure	Miss P. Jenkins
June	12	Nine Barrow Down	Miss E. S. Haines
June	23	Pepperbox Hill	Miss Sparks
July	2	Visit to the Misses Penrose	The Misses Penrose
July	22	Isle of Wight (Hamstead)	Mrs. Murch and Mrs. Killick
July	30	Selborne, Gilbert White Anniversary	Mrs. A. K. Hunt
Aug.	10	Breamore	Mrs. M. P. Yule
Sept.	17	South Haven Peninsula	Prof. R. Good

Geography **Chairman : John Robinson,** B.SC., I.S.M.

1970			
Jan.	17	Tithe Redemption Commission	J. Robinson
Feb.	16	Meandering down the Marches	Hallam Barnes
Mar.	7	Tibet and the Lamas ..	Thomas Hayden
June	19	Surveyor's Methods	J. Robinson
July	13	Map Making and Map Reading; Triangulation and Projections	J. Robinson
Sept.	16	Half Way Round the World	The Misses Ogilvy

May	20	Visit to the Ordnance Survey Museum, Southampton	J. Robinson
July	17	Coach through West Dorset	Dr. D. A. Wray
Aug.	18	Poole Harbour Boat Trip	Miss J. Glover

Geology **Chairman : D. A. Wray,** PH.D., M.SC., F.G.S.

1970			
Mar.	9	The Growth of Our Museum: Notably the Geology Section	Dr. D. A. Wray
		Fluorescent Minerals from North America	Dr. Doris Odlum

July	17	Coach through West Dorset	Dr. D. A. Wray

Photography **Chairman : Miss U. M. Ogle**

1969			
Oct.	13	Kaleidoscope	F. W. Barnes, Miss M. Brazier, Mrs. M. Laidlaw, and Mrs. L. B. Lee
Nov.	1	Eastward All the Way, Snippets from Round the World	Mrs. M. H. Anderson, B.A.
Dec.	8	Antarctic Adventure	M. H. Owen
1970			
Jan.	10	Seranade to the Hills	D. J. Dudley

Feb.	7	"Fings aint wot they used to be" illustrated by slides of early Bournemouth and Poole	Don Smith and N. Inglis
Mar.	18	A Country Lover's Notebook	Mrs. I. Dudley

Physics and Chemistry **Chairman : Mrs. I. M. Bircumshaw, B.SC.**

1969			
Oct.	4	Why the Winds Blow	W. H. Lee
Nov.	10	Memories of a Chemist: Cambridge in the 1920's	Mrs. I. M. Bircumshaw
Dec.	6	The Growth of the Chemical Industry in the North West	J. Birchenough
1970			
Jan.	14	The Philosophy of Physics, causality, determinism, chance	K. Kellner, Ph.D.
Jan.	28	Matter and Energy	Dr. K. Kellner
Feb.	11	The Building Blocks of Nature: Elementary Particles	Dr. K. Kellner
Feb.	25	Atoms and the Structure of Matter: Solids, Liquids, Gases, Plasmas	Dr. K. Kellner
Mar.	11	The Fascinating World of the Refrigerator	Dr. K. Kellner
Oct.	3	Radiation, Energy in Empty Space	Dr. K. Kellner

June	6	Visit to Pittard's Model Tannery, Yeovil	Mrs. I. M. Bircumshaw
Aug.	26	Afternoon Visit to the Factory of Max Factor & Co. Wallisdown	Mrs. I. M. Bircumshaw
Sept.	22	Visit to I.B.M. Laboratories, Hursley Park, Winchester	Mrs. I. M. Bircumshaw

Zoology — Entomology **Chairman: Sqdn. Ldr. J. L. C. Banks**

1969			
Nov.	8	Simulation and Camouflage in Insecta	Sqdn. Ldr. J. L. C. Banks
1970			
Feb.	14	World Migration of Lepidoptera	Sqdn. Ldr. J. L. C. Banks
April	25	Parasites of Birds	D. J. Shillcoch, B.SC.
Sept.	9	European Lepidoptera in the Field	Sqdn. Ldr. J. L. C. Banks

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May	14	Visit to the Entomological Dept., Natural Science Museum, South Kensington	Sqdn. Ldr. J. L. C. Banks
Aug.	6	General Observation of Insects in the New Forest	Sqdn. Ldr. J. L. C. Banks

Zoology — Mamalia **Chairman: Miss K. M. Bennetts**

1969			
Oct.	29	Cranborne Chase and its Wildlife	R. Prior, L. I. Biol.
Nov.	26	Elephants Yesterday and Today	Miss K. M. Bennetts
Dec.	31	East African Wild Life	G. Emerson
1970			
Jan.	21	Some Wild Life of Western Canada	Mrs. M. Offen
Mar.	14	The Natural History of Yorkshire	Major G. G. Watson, F.Z.S.
April	11	Deer	Miss K. M. Bennetts
April	22	Underwater Photography (in relation to local marine fauna)	P. Smith
May	27	Enjoying the New Forest's Deer	P. H. Carne
Sept.	23	Uganda and Ethiopia (Jottings from my diary)	Miss K. M. Bennetts

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Oct.	17	Deer	Miss K. M. Bennetts
Nov.	14	Deer	Miss K. M. Bennetts
Nov.	18	Mammals	Miss K. M. Bennetts
Dec.	12	Mammals	Miss K. M. Bennetts

1970			
Feb.	27	Mammals	Miss K. M. Bennetts
Mar.	24	Mammals	Miss K. M. Bennetts
April	13	Badger Watch	Miss K. M. Bennetts
May	5	Deer	Miss K. M. Bennetts
May	19	Badger Watch	Miss K. M. Bennetts
May	29	Mammals	Miss K. M. Bennetts
June	26	Deer	Miss K. M. Bennetts
July	7	Snakes and Mammals	Miss K. M. Bennetts
July	28	New Forest Deer	Miss K. M. Bennetts
Aug.	4	Roe Deer	Miss K. M. Bennetts
Aug.	27	Deer and other Mammals	Miss K. M. Bennetts and Mrs. Arnold
Sept.	14	Deer and Badger Watch	Miss K. M. Bennetts
Sept.	29	Little Sea for Wildlife	Miss K. M. Bennetts and Mrs. Arnold

Zoology — Ornithology **Chairman: Mrs. L. M. Maddox**

1969			
Oct.	22	Reserved for Birds: Minsmere	Mrs. L. M. Maddox
1970			
Mar.	21	Lundy, Isle of Puffins	Mrs. Angela Hughes
July	20	Indoor Meeting, Bird Song	Mrs. L. M. Maddox

1969			
Oct.	7	Goathorn Peninsula	Mrs. V. Follett
Oct.	21	Pennington Marshes	Mrs. L. M. Maddox
Nov.	6	Stanpit Marsh	Mrs. L. M. Maddox
Nov.	25	New Forest — Blissford Area	Mrs. V. Morgan
Dec.	4	Shell Bay and Studland Beach	Miss G. West
Dec.	19	Radipole Lake, Ferrybridge and Lodmoor	Mrs. V. Follett
1970			
Jan. and	8 9	Two Day Field Meeting to Slimbridge, Gloucestershire	Mrs. L. M. Maddox
Jan.	15	Stanpit Marsh	Mrs. L. M. Maddox
Jan.	27	Kingston Common	Mrs. L. M. Maddox
Feb.	13	Tichfield Haven	R. Headley and Mrs. L. M. Maddox
Feb.	24	Crichel Lake and Woods	Mrs. V. Follett
Mar.	5	Ibsley and Kingfisher Lake	Mrs. L. M. Maddox
Mar.	17	Kingston Lacey and Pamphill	Mrs. D. Rossiter
April	2	Hengistbury Head for early Migrants	Miss E. Balfour-Browne
April	17	Survey for B.T.O. Atlas Scheme	Mrs. L. M. Maddox
April	30	Stanpit Marsh	Mrs. L. M. Maddox
May	7	Winspit	Mrs. V. Follett
May	12	Survey for B.T.O. Atlas Scheme	Mrs. L. M. Maddox
May	21	Evening Meeting to Verwood	Miss E. Balfour-Browne
June	4	Durlston Head for Cliff Nesting Birds	Mrs. L. M. Maddox
June	16	Kingston Common	Mrs. L. M. Maddox
June	25	Survey for B.T.O. Atlas Scheme	Mrs. L. M. Maddox
July	9	Waterditch	Mrs. L. M. Maddox
Aug.	13	The New Forest	Mrs. L. M. Maddox
Aug.	25	Stanpit Marsh	Mrs. L. M. Maddox
Sept.	11	Ninebarrow Down	Miss G. West
Sept.	24	Keyhaven Marshes	Mrs. U. E. Murch and Mrs. K. D. Killick

MEMBERS' DAYS

Chairman: Mrs. J. C. Earl

Oct.	8	Scientific Questions	Mrs. A. K. Hunt
Nov.	12	Bird Recognition	T. D. Bisiker
Dec.	10	Your Favourite Six Slides	Miss I. K. Burroughs

1970			
Jan.	12	Miscellany	Mrs. A. K. Hunt
Feb.	9	Archaeology — Artifacts from the museum collections	Mrs. C. Simpson
April	8	Bird Recognition (continuation)	T. D. Bisiker
June	10	An afternoon in the Garden	E. Chambers and Mrs. A. K. Hunt
July	8	Heraldry	J. Robinson, B.SC.

PUBLICATIONS RECEIVED

The following publications were received in the Library during the year. Some of them were gifts from members who subscribe personally to the particular Society. The Library Committee are glad to record their appreciation of such gifts.

1. Publications issued by a Society or Institution

Birmingham Natural History & Philosophical Society—*Proceedings.*
Botanical Society of the British Isles—(1) *Watsonia,* (2) *Proceedings.*
Bournemouth Museums Bulletin and other publications.
Bristol Naturalists' Society—*Proceedings.*
British Association for the Advancement of Science—*Science.*
British Deer Society—*Deer News.*
British Trawlers' Federation—*Report and Pamphlets.*
British Trust for Ornithology—(1) *New Bulletin,* (2) *Bird Study.*
California Academy of Sciences—*Proceedings.*
Cambridge Antiquarian Society—*Proceedings.*
Carnegie U.K. Trust—*Annual Report.*
Cotteswold Naturalists' Field Club—*Proceedings.*
Council for Nature—(1) *News for Naturalists,* (2) *Habitat.*
Croydon Natural History & Scientific Society—*Proceedings.*
Dorset Natural History & Archaeology Society—*Proceedings.*
Fair Isle Bird Observatory—*Annual Report.*
Fauna Preservation Society—*Oryx.*
Hampshire Field Club & Archaeology Society—*Proceedings.*
Hampshire Field Club: Ornithological Section—*Bird Report.*
Hastings Natural History Society—*Journal.*
Hertfordshire Natural History Society—*Transactions.*
Historical Association—*Pamphlets.*
Isle of Wight Natural History & Archaeological Society—*Proceedings.*
Linnean Society of London (Botany)—*Proceedings.*
Lloyd Library & Museum, Cincinnati—*Lloydia.*
London Geologists' Association—*Proceedings.*
Men of the Trees—*Trees and Life.*
National Coal Board—*Coal Quarterly.*
National Trust—*News Letter.*
North Gloucestershire Naturalists' Society—*Journal.*
Osaka Museum, Japan—*Bulletin.*
Royal Commonwealth Society—*Journal.*
Royal Horticultural Society—*Journal.*
Royal Society for the Protection of Birds—*Bird Notes.*
Senckenbergischen Naturforschenden—*Natur und Museum.*
Severn Wildfowl Trust—*Annual Report.*
Smithsonian Institution, U.S.A.—*Annual Report.*
Societé Jersiaise—*Annual Bulletin.*
South-Eastern Union of Scientific Societies—*Proceedings.*
South London Entomological & Natural History Society—*Proceedings and Transactions.*
Torquay Natural History Society—*Transactions and Proceedings.*
Tromso Museum, Norway—(1) *Astarte (short papers),* (2) *Acta Borealia.*
Upsala University, Sweden—*Acta Phytogeographica Suecica.*
U.S. Information Service—*Pamphlets, Science Horizons.*
West Wales Naturalists' Trust—*Nature in Wales.*
Yorkshire Naturalists' Union—*The Naturalist.*
Zoological Society of London—*Newsletter.*

2. Periodicals received

Ago, Animals, Antiquity, British Birds, Geographical Magazine, Nature, Science Journal.

The Bourne Press, 3/11 Spring Road, Bournemouth